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OM protein - protein search, using sw model

Run on: August 19, 2005, 23:18:33 ; Search time 160.135 Seconds
(without alignments)
60.380 Million cell updates/sec

Title: US-10-603-062-18
Perfect score: 122
Sequence: 1 MAISGVPVLGFFIIAVLMSAQESWA 25

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_16Dec04:*
1: geneseqp1980s:*
2: geneseqp1990s:*
3: geneseqp2000s:*
4: geneseqp2001s:*
5: geneseqp2002s:*
6: geneseqp2003as:*
7: geneseqp2003bs:*
8: geneseqp2004s:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	122	100.0	25	2	AAR49445	Aar49445 Immunomod
2	122	100.0	25	2	AAR49587	Aar49587 Sequence
3	122	100.0	25	2	AAW31864	Aaw31864 MHC class
4	122	100.0	25	2	AAY09341	Aay09341 Human pap
5	122	100.0	25	3	AAY70694	Aay70694 Endoplasm
6	122	100.0	25	3	AAB30292	Aab30292 CD4+ T-ce
7	122	100.0	25	4	AAG67288	Aag67288 Amino aci
8	122	100.0	25	4	AAB95956	Aab95956 HLA-DRalp
9	122	100.0	25	4	AAG64714	Aag64714 HPV immun
10	122	100.0	25	4	AAB20205	Aab20205 HLA-DR-al
11	122	100.0	25	4	AAU03561	Aau03561 Hydrophob
12	122	100.0	25	5	AAO17006	Aao17006 HLA-Dralp
13	122	100.0	25	5	ABG68880	Abg68880 Endoplasm
14	122	100.0	25	5	AAE19014	Aae19014 Hydrophob
15	122	100.0	25	5	ABB09908	Abb09908 Radiolabe
16	122	100.0	25	5	ABB75927	Abb75927 Endoplasm
17	122	100.0	25	5	ABB08107	Abb08107 MHC class
18	122	100.0	25	6	ABU08975	Abu08975 Human exp
19	122	100.0	25	6	AAE35568	Aae35568 Hydrophob
20	122	100.0	25	6	AAO23269	Aao23269 Hydrophob
21	122	100.0	25	6	ABU63379	Abu63379 Human tPA
22	122	100.0	25	7	ABU10009	Abu10009 Human leu
23	122	100.0	25	7	ADF57571	Adf57571 Human sig
24	122	100.0	25	8	ADM13766	Adm13766 MHC class
25	122	100.0	25	8	ADN59204	Adn59204 HLA-DRalp
26	122	100.0	38	2	AAY09343	Aay09343 Human pap
27	122	100.0	38	4	AAG64720	Aag64720 HPV immun
28	122	100.0	38	4	AAB20217	Aab20217 HLA-DR-al
29	122	100.0	40	2	AAR49437	Aar49437 Immunomod
30	122	100.0	40	2	AAR49588	Aar49588 Human inv
31	122	100.0	49	2	AAR49438	Aar49438 Minigene
32	122	100.0	49	2	AAR49589	Aar49589 Human inv
33	122	100.0	129	3	AAG03754	Aag03754 Human sec
34	122	100.0	140	3	AAB58489	Aab58489 Lung canc
35	122	100.0	145	3	AAG00183	Aag00183 Human sec
36	122	100.0	236	7	ADI21043	Adi21043 Novel hum
37	122	100.0	248	2	AAW37341	Aaw37341 DR alpha-
38	122	100.0	253	3	AAY68277	Aay68277 Class II
39	122	100.0	253	3	AAY52931	Aay52931 Class II
40	122	100.0	253	4	AAB58692	Aab58692 Class II
41	122	100.0	254	4	ABB50276	Abb50276 HLA-DR al
42	122	100.0	254	5	AAG79361	Aag79361 Human HLA
43	122	100.0	254	6	ABR43094	Abr43094 Human HLA
44	122	100.0	254	7	ADE57481	Ade57481 Human Pro
45	122	100.0	254	7	ADE57473	Ade57473 Human Pro

ALIGNMENTS

RESULT 1
AAR49445
ID AAR49445 standard; protein; 25 AA.
XX
AC AAR49445;
XX
DT 25-MAR-2003 (revised)
DT 16-SEP-1994 (first entry)
XX
DE Immunomodulatory trafficing sequence #4.
XX
KW Naturally-occuring; immunomodulatory protein; human; therapy; class I;
KW major histocompatibility complex; class II; allotype; type I diabetes;
KW autoimmune disease; rheumatoid arthritis; T-cell-mediated response;
KW mutiple sclerosis; transplant rejection; vaccine; MHC.
XX
OS Homo sapiens.
XX
PN WO9404171-A1.
XX
PD 03-MAR-1994.
XX
PF 11-AUG-1993; 93WO-US007545.
XX
PR 11-AUG-1992; 92US-00925460.
PR 15-JUN-1993; 93US-00077255.
XX
PA (HARD) HARVARD COLLEGE.
XX
PI Urban RG, Chicz RM, Vignali DA, Hedley ML, Stern LJ;
PI Strominger JL;
XX
DR WPI; 1994-082825/10.
XX
PT Novel immunomodulatory peptide(s) and nucleic acids - useful for
PT treatment of auto:immune diseases, transplant rejection and for
PT vaccination.
XX
PS Claim 13; Page 94; 139pp; English.
XX
CC The sequences given in AAR49291-505 and AAR46981-7038 represent peptide
CC fragments of naturally-occuring immunomodulatory proteins. These
CC fragments are between 10-30 residues in length and bind to a human major
CC histocompatibility complex (MHC) class II allotype. These peptides may be
CC used for therapy of autoimmune diseases, such as type I diabetes,
CC rheumatoid arthritis and mutiple sclerosis, and to reduce transplant
CC rejection. They may also be used for vaccination providing an exclusively
CC T-cell-mediated response, which can be class I or class-II based, or

```
CC   both, depending on the length and character of the immunogenic peptides.
CC   (Updated on 25-MAR-2003 to correct PN field.) (Updated on 25-MAR-2003 to
CC   correct PR field.)
XX
SQ   Sequence 25 AA;

  Query Match             100.0%;  Score 122;  DB 2;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 3.9e-13;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              |||||||||||||||||||||||||
Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 2
AAR49587
ID   AAR49587 standard; peptide; 25 AA.
XX
AC   AAR49587;
XX
DT   25-MAR-2003  (revised)
DT   15-SEP-1994  (first entry)
XX
DE   Sequence of MHC class II alpha signal peptide.
XX
KW   Trafficking sequence; signal peptide; major histocompatibility complex.
XX
OS   Synthetic.
XX
PN   WO9404557-A1.
XX
PD   03-MAR-1994.
XX
PF   11-AUG-1992;   92WO-US006692.
XX
PR   11-AUG-1992;   92WO-US006692.
XX
PA   (HARD ) HARVARD COLLEGE.
XX
PI   Urban RG,  Chicz RM,  Vignali DAA,  Hedley ML,  Stern LJ;
PI   Strominger JL;
XX
DR   WPI; 1994-083102/10.
XX
PT   New peptide binding to MHC class II allotype - useful for treating auto-
PT   immune diseases, transplant rejection and for immunisation.
XX
PS   Claim 20; Page 49; 60pp; English.
XX
CC   A trafficking sequence is an AA sequence which functions to control
CC   intracellular trafficking (directed movement from organelle to organelle
CC   or to the cell surface) of a polypeptide to which it is attached. Such
CC   trafficking sequences might traffic the polypeptide to ER, a lysosome, or
CC   an endosome, and include signal peptides, ER retention peptides such as
CC   AAR49584; and lysosome-targeting peptides such as AAR49585 and AAR49586.
CC   An example of a signal peptide with such a function is the signal peptide
CC   of MHC class II alpha (AAR49587). (Updated on 25-MAR-2003 to correct PN
CC   field.)
XX
SQ   Sequence 25 AA;

  Query Match             100.0%;  Score 122;  DB 2;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 3.9e-13;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              |||||||||||||||||||||||||
Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 3
AAW31864
ID   AAW31864 standard; peptide; 25 AA.
XX
AC   AAW31864;
XX
DT   06-MAY-1998  (first entry)
XX
DE   MHC class II alpha signal peptide.
XX
KW   RNA-loaded antigen presenting cell; trafficking sequence; APC production;
KW   tumour formation; pathogen infection; antigenic epitope; immune response;
KW   T cell proliferation; cytotoxic T lymphocyte; adoptive immunotherapy;
KW   therapy; TAE; CTL; PAE; MHC class II alpha signal peptide.
XX
OS   Synthetic.
XX
PN   WO9741210-A1.
XX
PD   06-NOV-1997.
XX
PF   30-APR-1997;   97WO-US007317.
XX
PR   30-APR-1996;   96US-00640444.
XX
PA   (UYDU-) UNIV DUKE.
XX
PI   Nair SK,  Boczkowski DJ,  Gilboa E;
XX
DR   WPI; 1997-549715/50.
XX
PT   Use of RNA-loaded antigen presenting cells - to induce T-cell
PT   proliferation for the treatment or prevention of tumour formation or
PT   pathogen infection.
XX
PS   Claim 49; Page 38; 47pp; English.
XX
CC   This sequence represents a MHC class II alpha signal peptide, and can be
CC   used in the method of the invention. The method is for producing an RNA-
CC   loaded antigen presenting cell (APC) that presents on its surface a
CC   tumour or pathogen antigenic epitope (TAE or PAE respectively) that
CC   induces T cell proliferation and an immune response against the tumour or
CC   pathogen, and comprises introducing into an APC in vitro, RNA that
CC   encodes the antigen. The RNA-loaded APCs can be used to stimulate
CC   cytotoxic T lymphocyte (CTL) proliferation ex vivo or in vivo. The ex
CC   vivo expanded CTL can be administered to a patient in a method of
CC   adoptive immunotherapy. The methods can be used for treating or
CC   preventing tumour formation or pathogen infection caused by e.g. HIV,
CC   hepatitis, influenza, poliomyelitis, measles, herpes, mumps or rubella
CC   viruses, Salmonella, Shigella or Enterobacter. The method circumvents the
CC   need to purify RNA or isolate and identify a TAE or PAE
XX
SQ   Sequence 25 AA;

  Query Match             100.0%;  Score 122;  DB 2;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 3.9e-13;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              |||||||||||||||||||||||||
Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 4
AAY09341
ID   AAY09341 standard; peptide; 25 AA.
XX
AC   AAY09341;
XX
DT   08-JUL-1999  (first entry)
XX
DE   Human papillomavirus E7 protein immunogenic peptide #10.
XX
KW   Human papillomavirus; HPV; E7 protein; immunogenic; immune response;
KW   infection; exophytic coneyloma; cervical cancer; respiratory papilloma;
```

KW conjunctival papilloma; genital tract infection.
XX
OS Human papillomavirus.
OS Synthetic.
XX
PN WO9918995-A1.
XX
PD 22-APR-1999.
XX
PF 09-OCT-1998; 98WO-US021456.
XX
PR 09-OCT-1997; 97US-00948378.
XX
PA (PANG-) PANGAEA PHARM INC.
XX
PI Urban RG, Chicz RM, Collins EJ, Hedley ML;
XX
DR WPI; 1999-277445/23.
XX
PT New human papilloma virus peptides - used for preventing or treating e.g.
PT exophytic coneyloma, cervical cancer, respiratory papilloma, conjunctival
PT papilloma or genital tract infection.
XX
PS Claim 13; Page 25; 40pp; English.
XX
CC The present invention describes human papillomavirus peptides which are
CC used for preventing or treating e.g. exophytic condyloma, cervical
CC cancer, respiratory papilloma, conjunctival papilloma or genital tract
CC infection. The peptides correspond to human papilloma virus (HPV) E7
CC sequences. The peptides and DNA encoding them can be used for inducing an
CC immune response to HPV in a mammal. They can be used for treating a human
CC who suffers from or is at risk of conditions such as exophytic condyloma,
CC flat condyloma, cervical cancer, respiratory papilloma, conjunctival
CC papilloma, genital-tract HPV infection and cervical dysplasia. They can
CC also be used for treating or preventing e.g. bowenoid papulosis, anal
CC dysplasia, vulval cancer, or prostate cancer
XX
SQ Sequence 25 AA;

Query Match 100.0%; Score 122; DB 2; Length 25;
Best Local Similarity 100.0%; Pred. No. 3.9e-13;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MAISGVPVLGFFIIAVLMSAQESWA 25
||||||||||||||||||||||||||
Db 1 MAISGVPVLGFFIIAVLMSAQESWA 25

RESULT 5
AAY70694
ID AAY70694 standard; peptide; 25 AA.
XX
AC AAY70694;
XX
DT 18-JUL-2000 (first entry)
XX
DE Endoplasmic reticulum targetting signal peptide.
XX
KW Attractin; immune response; macrophage; monocyte; T cell; cancer;
KW ER: immunostimulant; immunosuppressed patient; immunodeficiency syndrome;
KW transplant; autoimmune disease; signal peptide; endoplasmic reticulum.
XX
OS Homo sapiens.
XX
PN WO200015651-A1.
XX
PD 23-MAR-2000.
XX
PF 14-SEP-1999; 99WO-US020948.
XX
PR 14-SEP-1998; 98US-0100137P.
XX
PA (DAND) DANA FARBER CANCER INST INC.
XX
PI Duke-Cohan JS, Schlossman SF;
XX
DR WPI; 2000-271373/23.
XX
PT Isolated nucleic acids encoding human attractin polypeptides useful for
PT enhancing immune responses.
XX
PS Disclosure; Page 30; 120pp; English.
XX
CC The patent discloses four forms of human attractin polypeptides which
CC enhance immune response by promoting macrophage and monocyte spreading in
CC the presence of T cells. These include soluble attractin-1 and -2 and
CC membrane attractin-1 and -2. These various forms of attractin are encoded
CC by alternatively spliced mRNA molecule transcribed from a single gene.
CC The present sequence is a hydrophobic signal peptide which can be used to
CC direct attractin to endoplasmic reticulum (ER). Attractin can be used to
CC enhance immune response in immunosuppressed patients such as those
CC undergoing chemo- and radio-therapy treatment for cancer or those
CC suffering from common variable immunodeficiency syndrome. The protein may
CC also be used to screen modulators (agonists and antagonists) of immune
CC responses which may also be used to regulate immune reactions. Attractin
CC antibodies can be used to inhibit immune response in transplant
CC recipients or patients afflicted with autoimmune disease
XX
SQ Sequence 25 AA;

Query Match 100.0%; Score 122; DB 3; Length 25;
Best Local Similarity 100.0%; Pred. No. 3.9e-13;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MAISGVPVLGFFIIAVLMSAQESWA 25
||||||||||||||||||||||||||
Db 1 MAISGVPVLGFFIIAVLMSAQESWA 25

RESULT 6
AAB30292
ID AAB30292 standard; peptide; 25 AA.
XX
AC AAB30292;
XX
DT 12-FEB-2001 (first entry)
XX
DE CD4+ T-cell activation methods peptide ligand #54.
XX
KW CD4+ T-cell activation; peptide epitope; autoimmune disease;
KW infectious disease; cancer; immunological mass fingerprinting.
XX
OS Synthetic.
XX
PN WO200063702-A1.
XX
PD 26-OCT-2000.
XX
PF 20-APR-2000; 2000WO-US010888.
XX
PR 21-APR-1999; 99US-00295868.
PR 21-APR-1999; 99US-0130355P.
XX
PA (ZYCO-) ZYCOS INC.
PA (UNLO) KINGS COLLEGE LONDON.
XX
PI Peakman M, Chicz RM;
XX
DR WPI; 2000-665270/64.
XX
PT Identifying a class II major histocomatibility complex-binding fragment
PT of a polypeptide useful for diagnosing and protecting against diabetes
PT comprises contacting a ligand, a polypeptide and a mammalian antigen
PT presenting cell.
XX
PS Disclosure; Page 63; 118pp; English.

XX
CC The present invention is concerned with a method, designated
CC immunological mass fingerprinting, which enables the identification of
CC peptide epitopes that activate CD4+ T-cells. Peptides of this kind are
CC also given. CD4+ cells are involved in the pathogenesis of disease, and
CC the peptides can be used in the prevention and treatment of autoimmune
CC diseases such as diabetes, multiple sclerosis, rheumatoid arthritis,
CC myasthenia gravis, systemic lupus erythematosus, autoimmune premature
CC ovarian failure, Graves' thyroiditis, Hashimoto's thyroiditis, primary
CC hypothyroidism, coeliac disease, primary biliary cirrhosis, autoimmune
CC hepatitis, Addison's disease, vitiligo, systemic sclerosis and anti-
CC glomerular basement membrane disease, infectious diseases including
CC leprosy, measles, hepatitis C, HIV and parasitic diseases, and cancer
XX
SQ Sequence 25 AA;

Query Match 100.0%; Score 122; DB 3; Length 25;
Best Local Similarity 100.0%; Pred. No. 3.9e-13;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MAISGVPVLGFFIIAVLMSAQESWA 25
||||||||||||||||||||||||||
Db 1 MAISGVPVLGFFIIAVLMSAQESWA 25

RESULT 7
AAG67288
ID AAG67288 standard; peptide; 25 AA.
XX
AC AAG67288;
XX
DT 13-NOV-2001 (first entry)
XX
DE Amino acid sequence of a hydrophobic signal peptide.
XX
KW hB7-H2; T cell stimulator; immunosuppression; cancer; AIDS;
KW congenital immune deficiency; cellular immune response;
KW inflammatory condition; autoimmune disease; rheumatoid arthritis;
KW multiple sclerosis; insulin-dependent diabetes mellitus.
XX
OS Unidentified.
XX
PN WO200164704-A1.
XX
PD 07-SEP-2001.
XX
PF 02-MAR-2001; 2001WO-US006769.
XX
PR 02-MAR-2000; 2000US-0186519P.
XX
PA (MAYO-) MAYO FOUND MEDICAL EDUCATION & RES.
XX
PI Chen L;
XX
DR WPI; 2001-514837/56.
XX
PT An isolated DNA encoding a hB7-H2 polypeptide, useful for treating
PT cancer, AIDS, or autoimmune diseases (e.g. rheumatoid arthritis, multiple
PT sclerosis or insulin-dependent diabetes mellitus).
XX
PS Disclosure; Page 20; 50pp; English.
XX
CC The specification describes polypeptide, designated hB7-H2. The hB7-H2
CC polypeptide co-stimulates T cells. The hB7-H2 proteins and its variants
CC are generally useful as immune response-stimulating therapeutics. For
CC example, the polypeptides can be used for treatment of disease conditions
CC characterized by immunosuppression, e.g., cancer, AIDS or AIDS-related
CC complex, other virally or environmentally-induced conditions, and certain
CC congenital immune deficiencies. They may also be employed to increase
CC immune function that has been impaired by the use of radiotherapy or
CC immunosuppressive drugs such as certain chemotherapeutic agents, and
CC therefore are particularly useful when given in conjunction with such
CC drugs or radiotherapy. The hB7-H2 nucleic acid and polypeptide can be
CC used to treat conditions involving cellular immune responses, e.g.,
CC inflammatory conditions (such as, for example, those induced by
CC infectious agents including Mycobacterium tuberculosis or M. leprae), or
CC other pathologic cell-mediated responses such as those involved in
CC autoimmune diseases (e.g. rheumatoid arthritis), multiple sclerosis, or
CC insulin-dependent diabetes mellitus). AAG67288-91 can be used to direct
CC hB7-H2 to specific intracellular compartments
XX
SQ Sequence 25 AA;

Query Match 100.0%; Score 122; DB 4; Length 25;
Best Local Similarity 100.0%; Pred. No. 3.9e-13;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MAISGVPVLGFFIIAVLMSAQESWA 25
||||||||||||||||||||||||||
Db 1 MAISGVPVLGFFIIAVLMSAQESWA 25

RESULT 8
AAB95956
ID AAB95956 standard; peptide; 25 AA.
XX
AC AAB95956;
XX
DT 25-JUN-2001 (first entry)
XX
DE HLA-DRalpha signal sequence SEQ ID 63.
XX
KW Epitope; tumour antigen; antiviral; immunostimulatory; cervical cancer;
KW human papillomavirus-associated disease; condyloma; cervical dysplasia;
KW cervical dysplasia; major histocompatibility complex; MHC I.
XX
OS Homo sapiens.
XX
PN WO200119408-A1.
XX
PD 22-MAR-2001.
XX
PF 18-SEP-2000; 2000WO-US025559.
XX
PR 16-SEP-1999; 99US-00398534.
PR 16-SEP-1999; 99US-0154665P.
PR 09-DEC-1999; 99US-00458173.
PR 09-DEC-1999; 99US-0169846P.
XX
PA (ZYCO-) ZYCOS INC.
XX
PI Hedley ML, Urban RC, Chicz RM;
XX
DR WPI; 2001-265996/27.
XX
PT Novel nucleic acids encoding polyepitope polypeptides containing multiple
PT epitopes from one or more proteins, useful for treating tumors and as
PT vaccines against pathogenic agents.
XX
PS Disclosure; Page 8; 64pp; English.
XX
CC This invention relates to polynucleotides encoding a hybrid polypeptide
CC comprising a signal sequence and three segments that are either
CC contiguous or separated by a spacer amino acid or spacer peptide. The
CC invention specifically details polynucleotides encoding a polyepitope
CC peptide where the peptide segments are tumour antigens or a naturally
CC occurring protein of a pathogenic agent. The polyepitope peptides exhibit
CC antiviral and immunostimulatory activity. The polynucleotide and
CC polyepitope peptides are useful for eliciting an immune response in a
CC mammal. The polynucleotide and protein are useful as vaccines for
CC treating tumours and pathogenic infections. The polynucleotide is also
CC useful for preventing or treating human papillomavirus (HPV)-associated
CC diseases, particularly exophytic condyloma, flat condyloma, cervical
CC cancer, respiratory papilloma, conjunctival papilloma, genital-tract HPV
CC infection, cervical dysplasia, high grade squamous intraepithelial
CC lesions, and anal HPV infection. The polynucleotide and polypeptide are

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CC   useful for generating or enhancing prophylactic or therapeutic immune
CC   response against pathogens, tumours or autoimmune diseases in a
CC   population of individuals having diverse MHC allotypes, as positive
CC   controls in T cell stimulation assays in vitro, and as tools to
CC   understand processing of epitopes within cells. Peptides AAB95894 -
CC   AAB96037 and AAB96044 - AAB96048 represent major histocompatibility
CC   complex I (MHC I) associated tumour and pathogen antigens. The peptides
CC   can be used as part of the polyepitope proteins of the invention. Also
CC   included are examples of the polyepitope proteins represented by AAB96050
CC   - AAB96052, and localisation signal peptides AAB96038 - AAB96043 and
CC   AAB96049 which can be used in the construction of the polyepitope
CC   peptides
XX
SQ   Sequence 25 AA;

  Query Match             100.0%;  Score 122;  DB 4;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 3.9e-13;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              |||||||||||||||||||||||||
Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 9
AAG64714
ID   AAG64714 standard; peptide; 25 AA.
XX
AC   AAG64714;
XX
DT   24-SEP-2001  (first entry)
XX
DE   HPV immunogenic peptide SEQ ID 18.
XX
KW   Immunogenic peptide; HPV; class I restricted T cell epitope; cytostatic;
KW   antiviral; exophytic condyloma; flat condyloma; cervical cancer;
KW   respiratory papilloma; conjunctival papilloma; genital-tract HPV;
KW   cervical dysplasia.
XX
OS   Human papillomavirus.
XX
PN   US2001006639-A1.
XX
PD   05-JUL-2001.
XX
PF   12-JAN-2001; 2001US-00759960.
XX
PR   09-OCT-1997;   97US-0061657P.
PR   09-OCT-1998;   98US-00169425.
XX
PA   (ZYCO-) ZYCOS INC.
XX
PI   Urban RG,  Chiez RM,  Collins EJ,  Hedley ML;
XX
DR   WPI; 2001-407585/43.
XX
PT   Immunogenic peptides from human papilloma virus type 16 E7 protein that
PT   comprise overlapping class I restricted T cell epitopes, useful in
PT   vaccines for treating or preventing as exophytic condyloma, flat
PT   condyloma and cervical cancer.
XX
PS   Claim 13; Page 7; 12pp; English.
XX
CC   This invention relates to immunogenic peptides from human papillomavirus
CC   (HPV) type 16 E7 protein. The peptides are overlapping class I restricted
CC   T cell epitopes. The invention includes a therapeutic composition and
CC   vaccine containing the immunogenic peptides. Use of the composition
CC   results in cytostatic and/or antiviral activity. The peptides and nucleic
CC   acids encoding them can be used as vaccines to treat or prevent disease
CC   conditions such as exophytic condyloma, flat condyloma, cervical cancer,
CC   respiratory papilloma, conjunctival papilloma, genital-tract HPV
CC   infection, and cervical dysplasia. The present sequence represents a
CC   peptide of the invention
XX
SQ   Sequence 25 AA;

  Query Match             100.0%;  Score 122;  DB 4;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 3.9e-13;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              |||||||||||||||||||||||||
Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 10
AAB20205
ID   AAB20205 standard; peptide; 25 AA.
XX
AC   AAB20205;
XX
DT   14-MAY-2001  (first entry)
XX
DE   HLA-DR-alpha signal peptide.
XX
KW   Human leukocyte antigen; HLA-DR-alpha; signal peptide;
KW   human papilloma virus; HPV; immunogen; E7 protein; vaccine; infection;
KW   gene therapy; exophytic condyloma; flat condyloma; cervical cancer;
KW   respiratory papilloma; conjunctival papilloma; cervical dysplasia.
XX
OS   Human.
XX
PN   US6183746-B1.
XX
PD   06-FEB-2001.
XX
PF   09-OCT-1998;   98US-00169425.
XX
PR   09-OCT-1997;   97US-0061657P.
XX
PA   (ZYCO-) ZYCOS INC.
XX
PI   Urban RG,  Chicz RM,  Collins EJ,  Hedley ML;
XX
DR   WPI; 2001-190939/19.
XX
PT   Inducing an immune response in a mammal for prophylaxis and treatment of
PT   human papilloma virus infections such as cervical cancer, comprises
PT   administering immunogenic peptides from the papilloma virus type 16 E7
PT   protein.
XX
PS   Claim 25; Col 32; 23pp; English.
XX
CC   The present sequence is that of the non-polymorphic HLA-DR-alpha chain
CC   gene leader sequence. Claimed methods of the invention involve the
CC   administration to a mammal, such as a human, of a nucleic acid encoding a
CC   polypeptide comprising a first peptide, which controls intracellular
CC   trafficking, e.g. the present sequence, and a second peptide, which is
CC   derived from human papilloma virus type 16 E7 protein and which contains
CC   multiple overlapping class I HLA-binding T-cell epitopes. The immunogenic
CC   peptides and nucleic acids of the invention are used as vaccines
CC   prophylactically or therapeutically in subjects having, suspected of
CC   having, or at risk of exophytic condyloma, flat condyloma, cervical
CC   cancer, respiratory papilloma, conjunctival papilloma, genital-tract HPV
CC   infection and cervical dysplasia (claimed)
XX
SQ   Sequence 25 AA;

  Query Match             100.0%;  Score 122;  DB 4;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 3.9e-13;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              |||||||||||||||||||||||||
Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25
```

```
RESULT 11
AAU03561
ID   AAU03561 standard; peptide; 25 AA.
XX
AC   AAU03561;
XX
DT   26-SEP-2001  (first entry)
XX
DE   Hydrophobic signal peptide found in proteins destined for ER.
XX
KW   Human; immunoregulatory protein; B7-H1; co-stimulating T-cell;
KW   B-cell antibody-producing response; IgG2a antibody response; APC;
KW   immunodeficiency disease; inflammatory disease; autoimmune disease;
KW   endoplasmic reticulum; ER.
XX
OS   Homo sapiens.
XX
PN   WO200139722-A2.
XX
PD   07-JUN-2001.
XX
PF   30-NOV-2000; 2000WO-US032583.
XX
PR   30-NOV-1999;   99US-00451291.
PR   28-AUG-2000; 2000US-00649108.
XX
PA   (MAYO-) MAYO FOUND MEDICAL EDUCATION & RES.
XX
PI   Chen L;
XX
DR   WPI; 2001-397926/42.
XX
PT   Novel DNA encoding immunoregulatory molecule B7-H1, is useful for co-
PT   stimulating a T cell for augmenting immunoregulation and for controlling
PT   pathologic cell mediated conditions.
XX
PS   Disclosure; Page 25; 85pp; English.
XX
CC   The present sequence represents a hydrophobic signal peptide found in
CC   proteins destined for the endoplasmic reticulum (ER). The present
CC   sequence is described relating to the invention of novel human and mouse
CC   immunoregulatory protein B7-H1 (AAU03559, AAU03560). B7-H1 is useful for
CC   co-stimulating T-cells such as helper T-cells that provide helper
CC   activity for B-cell antibody-producing response e.g. IgG2a antibody
CC   response, in a mammal having an immunodeficiency disease, inflammatory
CC   condition or an autoimmune disease, by culturing B7-H1 with the mammalian
CC   T-cells in vitro, or administering B7-H1 or a nucleic acid encoding B7-H1
CC   to the T-cells, such that the level of CD40 ligand on the T-cell surface
CC   is increased. The method further involves providing a recombinant cell
CC   e.g. an antigen presenting cell (APC) which is the progeny of a cell
CC   obtained from the mammal and has been transfected or transformed ex vivo
CC   with a nucleic acid encoding B7-H1, so that the cell expresses B7-H1, and
CC   administering the cell to the mammal. Prior to administration, the APC is
CC   pulsed with an antigen or an antigenic peptide. B7-H1 can be used to
CC   control pathologic cell mediated conditions (e.g. those induced by
CC   infectious agents such as Mycobacterium tuberculosis) or other pathologic
CC   cell mediated responses such as those involved in autoimmune diseases
CC   (e.g. rheumatoid arthritis)
XX
SQ   Sequence 25 AA;

  Query Match             100.0%;  Score 122;  DB 4;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 3.9e-13;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              |||||||||||||||||||||||||
Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 12
AAO17006
ID   AAO17006 standard; peptide; 25 AA.
XX
AC   AAO17006;
XX
DT   29-MAY-2002  (first entry)
XX
DE   HLA-Dralpha signal peptide SEQ ID NO: 4.
XX
KW   Alpha-MSH; inflammation; autoimmune disease; gene therapy; sepsis;
KW   alpha-melanocyte stimulating hormone; rheumatoid arthritis; asthma;
KW   cirrhosis; dermatitis; psoriasis; inflammatory bowel disease;
KW   immunosuppressive; antiinflammatory; antirheumatic; antiarthritic;
KW   antiasthmatic; antibacterial; dermatological; antipsoriatic;
KW   antidiabetic; ophthalmological; neuroprotective; multiple sclerosis;
KW   diabetes; uveitis; coeliac disease.
XX
OS   Unidentified.
XX
PN   WO200206316-A2.
XX
PD   24-JAN-2002.
XX
PF   16-JUL-2001; 2001WO-US022263.
XX
PR   14-JUL-2000; 2000US-0218381P.
PR   18-AUG-2000; 2000US-0226382P.
PR   06-OCT-2000; 2000US-0238380P.
PR   29-DEC-2000; 2000US-0258764P.
PR   14-JUN-2001; 2001US-0298317P.
XX
PA   (ZYCO-) ZYCOS INC.
XX
PI   Hedley ML,  Urban R,  Aziz N,  Chen H,  Etemad-Moghadam B,  Yin P;
XX
DR   WPI; 2002-195801/25.
XX
PT   Novel nucleic acid encoding fusion protein comprising alpha-melanocyte
PT   stimulating hormone concatamer or its analog, for treating inflammatory
PT   or autoimmune disorders.
XX
PS   Disclosure; Page 17; 89pp; English.
XX
CC   The present invention relates to a nucleic acid comprising a sequence
CC   encoding a fusion polypeptide having an alpha-melanocyte stimulating
CC   hormone (MSH) concatamer. The sequences are useful for treating an
CC   individual suffering from, or at risk of, a disorder of the immune system
CC   e.g. inflammatory disorder or autoimmune disorder, including rheumatoid
CC   arthritis, asthma, sepsis, cirrhosis, dermatitis, psoriasis, contact
CC   hypersensitivity, inflammatory bowel disease, autoimmune encephalitis,
CC   multiple sclerosis, diabetes, lupus, uveitis and coeliac disease. The
CC   present sequence is a peptide described in the exemplification of the
CC   invention
XX
SQ   Sequence 25 AA;

  Query Match             100.0%;  Score 122;  DB 5;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 3.9e-13;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              |||||||||||||||||||||||||
Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 13
ABG68880
ID   ABG68880 standard; peptide; 25 AA.
XX
AC   ABG68880;
XX
DT   07-OCT-2002  (first entry)
XX
DE   Endoplasmic reticulum (ER) targeting peptide.
```

XX
KW CYP1B1; major histocompatibility complex; cancer; endoplasmic reticulum;
KW translational repressor; rodent; cytostatic; MHC; nuclear localisation;
KW Double PEP-Padre protein; ER; lysosome; secretion targeting.
XX
OS Unidentified.
XX
PN WO200242325-A2.
XX
PD 30-MAY-2002.
XX
PF 31-OCT-2001; 2001WO-US045170.
XX
PR 31-OCT-2000; 2000US-0244501P.
PR 12-JAN-2001; 2001US-0261719P.
PR 15-JUN-2001; 2001US-0298428P.
XX
PA (ZYCO-) ZYCOS INC.
XX
PI Aziz N, Hedley ML, Urban RG, Tomlinson AJ, Cole G;
XX
DR WPI; 2002-557504/59.
XX
PT CYP1B1 polynucleotide for inducing immune response against cancer, has
PT transcriptional units encoding polypeptides, and lack sequences found in
PT untranslated region of naturally occurring forms of transcript.
XX
PS Disclosure; Page 4; 73pp; English.
XX
CC The invention relates to a polynucleotide comprising a transcriptional
CC unit (TU) encoding CYP1B1, or protein comprising a peptide that binds to
CC a major histocompatibility complex class I or II molecule, where TU does
CC not contain a translational repressor element. The sequences are useful
CC for inducing an immune response especially T or B cell response, in a
CC mammal suffering from, or at risk of, cancer, where the method preferably
CC comprises detecting expression of CYP1B1 in a tumour of a mammal, and
CC administering CYP1B1 DNA, where the mammal belongs to a species,
CC especially human, and CYP1B1 or its portion is identical to a sequence of
CC a naturally occurring CYP1B1 polypeptide of a different species which is
CC a rodent, preferably a rat or mouse. The sequences of the invention are
CC further useful for reducing tumour growth or tumour activity in a mammal
CC by identifying a mammal having a tumour, administering CYP1B1 DNA, and
CC detecting a reduction in the size or activity of the tumour. This
CC sequence represents a peptide of the invention
XX
SQ Sequence 25 AA;

Query Match 100.0%; Score 122; DB 5; Length 25;
Best Local Similarity 100.0%; Pred. No. 3.9e-13;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MAISGVPVLGFFIIAVLMSAQESWA 25
||||||||||||||||||||||||||
Db 1 MAISGVPVLGFFIIAVLMSAQESWA 25

RESULT 14
AAE19014
ID AAE19014 standard; peptide; 25 AA.
XX
AC AAE19014;
XX
DT 21-MAY-2002 (first entry)
XX
DE Hydrophobic signal peptide.
XX
KW B7-H3; B7-H4; T cell; immunodeficiency disease; immune response;
KW augmenter; cancer; acquired immune deficiency syndrome; AIDS; virucide;
KW AIDS-related complex disease; virally-induced condition; immunotherapy;
KW environmentally-induced condition; immune mechanism; immunostimulator;
KW cytostatic; anti-HIV; congenital immune deficiency; signal peptide.
XX
OS Unidentified.
XX
PN WO200210187-A1.
XX
PD 07-FEB-2002.
XX
PF 26-JUL-2001; 2001WO-US041430.
XX
PR 27-JUL-2000; 2000US-0220991P.
XX
PA (MAYO-) MAYO FOUND MEDICAL EDUCATION RES.
XX
PI Chen L;
XX
DR WPI; 2002-206178/26.
XX
PT New DNA encoding a B7-H4 polypeptide capable of co-stimulating a T-cell,
PT is useful for treating immunodeficiency diseases, including cancer and
PT acquired immuno deficiency syndrome.
XX
PS Disclosure; Page 23; 61pp; English.
XX
CC The invention relates to novel B7-H3 and B7-H4 polypeptides useful for co
CC -stimulating T cells and the nucleic acid molecules encoding them. The
CC protein sequences of the invention are useful for co-stimulating a T cell
CC in a mammal suspected of having immunodeficiency disease. They are useful
CC for identifying a compound that inhibits or enhances an immune response.
CC They are useful as augmenters of immune responses both in vivo and in
CC vitro, and thus is useful for treating immunodeficiency diseases
CC including cancer, acquired immune deficiency syndrome (AIDS) or AIDS-
CC related complex diseases, virally or environmentally-induced conditions
CC and congenital immune deficiencies. These sequences are useful for
CC enhancing immune responses in normal subjects. They are also useful in
CC basic scientific studies of immune mechanisms, and for the production of
CC activated T cells for use in studies on T cell function, and in passive
CC immunotherapy. The present sequence is a hydrophobic signal peptide used
CC to traffic the B7-H3 or B7-H4 proteins
XX
SQ Sequence 25 AA;

Query Match 100.0%; Score 122; DB 5; Length 25;
Best Local Similarity 100.0%; Pred. No. 3.9e-13;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MAISGVPVLGFFIIAVLMSAQESWA 25
||||||||||||||||||||||||||
Db 1 MAISGVPVLGFFIIAVLMSAQESWA 25

RESULT 15
ABB09908
ID ABB09908 standard; peptide; 25 AA.
XX
AC ABB09908;
XX
DT 10-JUN-2002 (first entry)
XX
DE Radiolabelled immunotoxin signal sequence peptide #1.
XX
KW Radiolabelled immunotoxin; signal sequence; RIT; cancer; GVHD;
KW graft-versus-host disease; autoimmune disease; infectious disease;
KW cytostatic; immunosuppressive; antibacterial; virucide; haemostatic;
KW antirheumatic; antiarthritic; antidiabetic; neuroprotective; anti-HIV;
KW muscular-active; dermatological; antiinflammatory; tuberculostatic;
KW nootropic; hepatotropic.
XX
OS Unidentified.
XX
PN WO200207783-A2.
XX
PD 31-JAN-2002.
XX
PF 20-JUL-2001; 2001WO-US022987.
XX

PR 20-JUL-2000; 2000US-0219759P.
XX
PA (MINU) UNIV MINNESOTA.
PA (UABR-) UAB RES FOUND.
XX
PI Vallera DA, Buchsbaum DJ;
XX
DR WPI; 2002-241556/29.
XX
PT Radiolabeled immunotoxins, useful for treating pathological conditions by
PT killing pathogenic cells e.g. cancer, comprises toxic domain, targeting
PT domain and at least one radionuclide atom.
XX
PS Disclosure; Page 18; 53pp; English.
XX
CC The sequence represents a possible signal peptide for a radiolabelled
CC immunotoxin of the invention. The invention relates to a novel
CC radiolabeled immunotoxin (RIT) comprising a toxic domain, a targeting
CC domain, and at least one radionuclide atom. The RIT has cytostatic,
CC immunosuppressive, antibacterial, virucide, haemostatic, antirheumatic,
CC antiarthritic, antidiabetic, neuroprotective, muscular-active,
CC dermatological, antiinflammatory, tuberculostatic, anti-HIV, nootropic,
CC and hepatotropic activity. The radiolabeled immunotoxin proteins (RIT and
CC RMIT) are administered as therapeutic agents to a subject to treat
CC pathological conditions such as cancer, graft-versus-host disease (GVHD),
CC autoimmune disease or infectious diseases. The method is effective
CC against pathogenic cells and involves killing target cells in the subject
XX
SQ Sequence 25 AA;

Query Match 100.0%; Score 122; DB 5; Length 25;
Best Local Similarity 100.0%; Pred. No. 3.9e-13;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              |||||||||||||||||||||||||
Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25
```

Search completed: August 19, 2005, 23:29:46
Job time : 162.135 secs

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OM protein - protein search, using sw model

Run on: August 19, 2005, 23:21:28 ; Search time 74.2703 Seconds
(without alignments)
82.738 Million cell updates/sec

Title: US-10-603-062-16
Perfect score: 67
Sequence: 1 LMGTLGIVCPIC 12

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : UniProt_03:*
1: uniprot_sprot:*
2: uniprot_trembl:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	67	100.0	26	2	Q84267	Q84267 human papil
2	67	100.0	94	2	Q8B5P6	Q8b5p6 human papil
3	67	100.0	98	1	VE7_HPV16	P03129 human papil
4	67	100.0	98	2	O11650	O11650 human papil
5	67	100.0	98	2	O12337	O12337 human papil
6	67	100.0	98	2	O12338	O12338 human papil
7	67	100.0	98	2	Q8QRD2	Q8qrd2 human papil
8	67	100.0	98	2	Q8QRD3	Q8qrd3 human papil
9	67	100.0	98	2	Q8QRD4	Q8qrd4 human papil
10	67	100.0	98	2	Q8V1J0	Q8v1j0 human papil
11	67	100.0	98	2	Q778H3	Q778h3 human papil
12	67	100.0	98	2	Q778H5	Q778h5 human papil
13	60	89.6	97	2	Q82006	Q82006 human papil
14	58	86.6	93	2	Q9QDH2	Q9qdh2 human papil
15	58	86.6	93	2	Q9QDH4	Q9qdh4 human papil
16	58	86.6	93	2	Q9QDH6	Q9qdh6 human papil
17	58	86.6	93	2	Q9QDH8	Q9qdh8 human papil
18	58	86.6	98	1	VE7_HPV11	P04020 human papil
19	58	86.6	98	1	VE7_HPV6B	P06464 human papil
20	58	86.6	98	2	Q9QLP4	Q9qlp4 human papil
21	57	85.1	98	1	VE7_HPV6A	Q84292 human papil
22	56	83.6	94	2	Q6EGQ1	Q6egq1 human papil
23	56	83.6	94	2	Q6EGQ8	Q6egq8 human papil
24	56	83.6	99	2	O90724	O90724 human papil
25	56	83.6	101	1	VE7_HPV13	Q02271 human papil
26	55	82.1	93	1	VE7_HPV42	P27231 human papil
27	55	82.1	99	1	VE7_HPV35	P27230 human papil
28	55	82.1	99	2	Q76WP2	Q76wp2 human papil
29	55	82.1	104	1	VE7_HPV32	P36827 human papil
30	54	80.6	95	2	Q8B5W9	Q8b5w9 human papil
31	54	80.6	96	2	Q98005	Q98005 human papil
32	54	80.6	98	2	Q8JTG7	Q8jtg7 human papil
33	54	80.6	99	2	Q705H9	Q705h9 human papil
34	54	80.6	111	1	VE7_HPV07	P36816 human papil
35	54	80.6	113	1	VE7_RHPV1	P22161 rhesus papi
36	53	79.1	55	2	Q81886	Q81886 human papil
37	53	79.1	97	1	VE7_HPV33	P06429 human papil
38	52	77.6	98	1	VE7_HPV31	P17387 human papil
39	52	77.6	98	1	VE7_PCPV1	Q02272 pygmy chimp
40	52	77.6	98	2	Q6T377	Q6t377 human papil
41	52	77.6	99	2	O37386	O37386 common chim
42	52	77.6	105	1	VE7_HPV53	P36832 human papil
43	52	77.6	111	1	VE7_HPV40	P36829 human papil
44	52	77.6	336	2	Q9C7E9	Q9c7e9 arabidopsis
45	50	74.6	88	1	VE7_HPV63	Q07858 human papil

ALIGNMENTS

RESULT 1
Q84267
ID Q84267 ' PRELIMINARY; PRT; 26 AA.
AC Q84267;
DT 01-NOV-1996 (TrEMBLrel. 01, Created)
DT 01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT 01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE E7 ORF (Fragment).
OS Human papillomavirus.
OC Viruses; dsDNA viruses, no RNA stage; Papillomaviridae;
OC Papillomavirus.
OX NCBI_TaxID=10566;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=89095007; PubMed=2536104;
RA Choo K.-B., Cheung W.-F., Liew L.-N., Lee H.-H., Han S.-H.;
RT "Presence of Caenated Human Papillomavirus Type 16 Episomes in a
RT Cervical Carcimoma Cell Line.";
RL J. Virol. 63:782-789(1989).
DR EMBL; M24215; AAA46944.1; -.
DR InterPro; IPR000148; Papvi_E7.
DR Pfam; PF00527; E7; 1.
FT NON_TER 1 1
SQ SEQUENCE 26 AA; 2799 MW; 91C16F1D34D18B34 CRC64;

Query Match 100.0%; Score 67; DB 2; Length 26;
Best Local Similarity 100.0%; Pred. No. 0.00081;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LMGTLGIVCPIC 12
||||||||||||
Db 11 LMGTLGIVCPIC 22

RESULT 2
Q8B5P6
ID Q8B5P6 PRELIMINARY; PRT; 94 AA.
AC Q8B5P6;
DT 01-MAR-2003 (TrEMBLrel. 23, Created)
DT 01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
DT 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE E7 oncoprotein (Fragment).
OS Human papillomavirus type 16.
OC Viruses; dsDNA viruses, no RNA stage; Papillomaviridae;
OC Papillomavirus.
OX NCBI_TaxID=10581;
RN [1]
RP SEQUENCE FROM N.A.
RA Ponglikitmongkol M., Vaeteewoottacharn K.;
RL Submitted (JAN-2002) to the EMBL/GenBank/DDBJ databases.
DR EMBL; AF469197; AAO15692.1; -.
DR InterPro; IPR000148; Papvi_E7.
DR Pfam; PF00527; E7; 1.
FT NON_TER 94 94

```
SQ   SEQUENCE   94 AA;  10555 MW;  7CC3281BB2AE2C8A CRC64;

  Query Match             100.0%;  Score 67;  DB 2;  Length 94;
  Best Local Similarity   100.0%;  Pred. No. 0.0024;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db         83 LMGTLGIVCPIC 94


RESULT 3
VE7_HPV16
ID   VE7_HPV16      STANDARD;      PRT;    98 AA.
AC   P03129;
DT   21-JUL-1986 (Rel. 01, Created)
DT   21-JUL-1986 (Rel. 01, Last sequence update)
DT   25-OCT-2004 (Rel. 45, Last annotation update)
DE   E7 protein.
GN   Name=E7;
OS   Human papillomavirus type 16.
OC   Viruses; dsDNA viruses, no RNA stage; Papillomaviridae;
OC   Papillomavirus.
OX   NCBI_TaxID=10581;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=85246220; PubMed=2990099;
RA   Seedorf K., Krammer G., Durst M., Suhai S., Rowekamp W.G.;
RT   "Human papillomavirus type 16 DNA sequence.";
RL   Virology 145:181-185(1985).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=90218027; PubMed=2157796;
RA   Schneider-Maunoury S., Pehau-Arnaudet G., Breitburd F., Orth G.;
RT   "Expression of the human papillomavirus type 16 genome in SK-v cells,
RT   a line derived from a vulvar intraepithelial neoplasia.";
RL   J. Gen. Virol. 71:809-817(1990).
RN   [3]
RP   SEQUENCE FROM N.A.
RA   Song Y.S., Kee S.H., Kim J.W., Park N.H., Kang S.B., Lee H.P.;
RL   Submitted (NOV-1996) to the EMBL/GenBank/DDBJ databases.
RN   [4]
RP   SEQUENCE FROM N.A.
RA   Tornesello M.L., Buonaguro F.M., Meglio A., Buonaguro L.,
RA   Beth-Giraldo E., Giraldo G.;
RL   Submitted (JUN-1997) to the EMBL/GenBank/DDBJ databases.
RN   [5]
RP   FUNCTION.
RX   MEDLINE=88223347; PubMed=2836062;
RA   Phelps W.C., Yee C.L., Munger K., Howley P.M.;
RT   "The human papillomavirus type 16 E7 gene encodes transactivation and
RT   transformation functions similar to those of adenovirus E1A.";
RL   Cell 53:539-547(1988).
CC   -!- FUNCTION: E7 protein has both transforming and trans-activating
CC       activities.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
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CC   ---------------------------------------------------------------------
DR   EMBL; K02718; AAA46940.1; -.
DR   EMBL; D00735; BAA00633.1; -.
DR   EMBL; U76411; AAB18962.1; -.
DR   EMBL; U76412; AAB18963.1; -.
DR   EMBL; U76413; AAB18964.1; -.
DR   EMBL; AF003020; AAB70737.1; -.
DR   EMBL; AF003023; AAB70740.1; -.
DR   EMBL; AF003024; AAB70741.1; -.
DR   EMBL; AF003025; AAB70742.1; -.
DR   EMBL; AF003026; AAB70743.1; -.
DR   PIR; A03688; W7WLHS.
DR   InterPro; IPR000148; Papvi_E7.
DR   Pfam; PF00527; E7; 1.
KW   DNA-binding; Early protein; Oncogene; Trans-acting factor;
KW   Transcription regulation.
FT   SITE         58     61       C-XX-C motif-1.
FT   SITE         91     94       C-XX-C motif-2.
SQ   SEQUENCE   98 AA;  11022 MW;  9BD612534CD2C9EB CRC64;

  Query Match             100.0%;  Score 67;  DB 1;  Length 98;
  Best Local Similarity   100.0%;  Pred. No. 0.0025;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db         83 LMGTLGIVCPIC 94


RESULT 4
O11650
ID   O11650      PRELIMINARY;      PRT;    98 AA.
AC   O11650;
DT   01-JUL-1997 (TrEMBLrel. 04, Created)
DT   01-JUL-1997 (TrEMBLrel. 04, Last sequence update)
DT   05-JUL-2004 (TrEMBLrel. 27, Last annotation update)
DE   Putative transforming protein E7.
OS   Human papillomavirus type 16.
OC   Viruses; dsDNA viruses, no RNA stage; Papillomaviridae;
OC   Papillomavirus.
OX   NCBI_TaxID=10581;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=97407827; PubMed=9264576; DOI=10.1006/gyno.1997.4756;
RA   Song Y.S., Kee S.H., Kim J.W., Park N.H., Kang S.B., Chang W.H.,
RA   Lee H.P.;
RT   "Major sequence variants in E7 gene of human papillomavirus type 16
RT   from cervical cancerous and noncancerous lesions of Korean women.";
RL   Gynecol. Oncol. 66:275-281(1997).
RN   [2]
RP   SEQUENCE FROM N.A.
RA   Song Y.-S., Kee S.-H., Kim J.-W., Park N.-H., Kang S.-B., Chang W.-H.,
RA   Lee H.-P.;
RL   Submitted (OCT-1996) to the EMBL/GenBank/DDBJ databases.
RN   [3]
RP   SEQUENCE FROM N.A.
RA   Terai M., Ma Z., Burk R.D.;
RL   Submitted (JAN-2002) to the EMBL/GenBank/DDBJ databases.
RN   [4]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=22182962; PubMed=12195358;
RA   Chan P.K.S., Lam C.W., Cheung T.H., Li W.W.H., Lo K.W.K., Chan M.Y.M.,
RA   Cheung J.L.K., Xu L.Y., Cheng A.F.;
RT   "Human papillomavirus type 16 intratypic variant infection and risk
RT   for cervical neoplasia in southern China.";
RL   J. Infect. Dis. 186:696-700(2002).
RN   [5]
RP   SEQUENCE FROM N.A.
RA   Terai M., Fu L., Ma Z., Burk R.D.;
RL   Submitted (AUG-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; U76404; AAC58243.1; -.
DR   EMBL; AF472509; AAO15706.1; -.
DR   EMBL; AF486326; AAL96631.1; -.
DR   EMBL; AF486327; AAL96632.1; -.
DR   EMBL; AF486330; AAL96635.1; -.
DR   EMBL; AF486331; AAL96636.1; -.
DR   EMBL; AF486332; AAL96637.1; -.
DR   EMBL; AF486333; AAL96638.1; -.
DR   EMBL; AF486334; AAL96639.1; -.
DR   EMBL; AF486336; AAL96641.1; -.
DR   EMBL; AF486338; AAL96643.1; -.
DR   EMBL; AF486346; AAL96651.1; -.
DR   EMBL; AF486350; AAL96655.1; -.
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DR   EMBL; AF486351; AAL96656.1; -.
DR   EMBL; AF534061; AAQ10404.1; -.
DR   InterPro; IPR000148; Papvi_E7.
DR   Pfam; PF00527; E7; 1.
SQ   SEQUENCE   98 AA;  10995 MW;  81E53B534CC3281B CRC64;

  Query Match           100.0%;  Score 67;  DB 2;  Length 98;
  Best Local Similarity   100.0%;  Pred. No. 0.0025;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db         83 LMGTLGIVCPIC 94


RESULT 5
O12337
ID   O12337      PRELIMINARY;      PRT;    98 AA.
AC   O12337;
DT   01-JUL-1997 (TrEMBLrel. 04, Created)
DT   01-JUL-1997 (TrEMBLrel. 04, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   E7 protein.
OS   Human papillomavirus type 16.
OC   Viruses; dsDNA viruses, no RNA stage; Papillomaviridae;
OC   Papillomavirus.
OX   NCBI_TaxID=10581;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=97437474; PubMed=9292007;
RA   Tornesello M.L., Buonaguro F.M., Meglio A., Buonaguro L.,
RA   Beth-Giraldo E., Giraldo G.;
RT   "Sequence variations and viral genomic state of human papillomavirus
RT   type 16 in penile carcinomas from Ugandan patients.";
RL   J. Gen. Virol. 78:2199-2208(1997).
DR   EMBL; AF003021; AAB70738.1; -.
DR   InterPro; IPR000148; Papvi_E7.
DR   Pfam; PF00527; E7; 1.
SQ   SEQUENCE   98 AA;  11056 MW;  19DEB8F14CD2C705 CRC64;

  Query Match           100.0%;  Score 67;  DB 2;  Length 98;
  Best Local Similarity   100.0%;  Pred. No. 0.0025;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db         83 LMGTLGIVCPIC 94


RESULT 6
O12338
ID   O12338      PRELIMINARY;      PRT;    98 AA.
AC   O12338;
DT   01-JUL-1997 (TrEMBLrel. 04, Created)
DT   01-JUL-1997 (TrEMBLrel. 04, Last sequence update)
DT   05-JUL-2004 (TrEMBLrel. 27, Last annotation update)
DE   E7 protein.
OS   Human papillomavirus type 16.
OC   Viruses; dsDNA viruses, no RNA stage; Papillomaviridae;
OC   Papillomavirus.
OX   NCBI_TaxID=10581;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=97437474; PubMed=9292007;
RA   Tornesello M.L., Buonaguro F.M., Meglio A., Buonaguro L.,
RA   Beth-Giraldo E., Giraldo G.;
RT   "Sequence variations and viral genomic state of human papillomavirus
RT   type 16 in penile carcinomas from Ugandan patients.";
RL   J. Gen. Virol. 78:2199-2208(1997).
RN   [2]
RP   SEQUENCE FROM N.A.
RA   Jinhu X., Xinxing W., Yun T.;
RL   Submitted (JAN-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF003022; AAB70739.1; -.
DR   EMBL; AF477385; AAM03025.1; -.
DR   InterPro; IPR000148; Papvi_E7.
DR   Pfam; PF00527; E7; 1.
SQ   SEQUENCE   98 AA;  10969 MW;  9BD612534CCEA59B CRC64;

  Query Match           100.0%;  Score 67;  DB 2;  Length 98;
  Best Local Similarity   100.0%;  Pred. No. 0.0025;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db         83 LMGTLGIVCPIC 94


RESULT 7
Q8QRD2
ID   Q8QRD2      PRELIMINARY;      PRT;    98 AA.
AC   Q8QRD2;
DT   01-JUN-2002 (TrEMBLrel. 21, Created)
DT   01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
DT   01-OCT-2002 (TrEMBLrel. 22, Last annotation update)
DE   E7 protein.
OS   Human papillomavirus type 16.
OC   Viruses; dsDNA viruses, no RNA stage; Papillomaviridae;
OC   Papillomavirus.
OX   NCBI_TaxID=10581;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=22182962; PubMed=12195358;
RA   Chan P.K.S., Lam C.W., Cheung T.H., Li W.W.H., Lo K.W.K., Chan M.Y.M.,
RA   Cheung J.L.K., Xu L.Y., Cheng A.F.;
RT   "Human papillomavirus type 16 intratypic variant infection and risk
RT   for cervical neoplasia in southern China.";
RL   J. Infect. Dis. 186:696-700(2002).
DR   EMBL; AF486345; AAL96650.1; -.
DR   InterPro; IPR000148; Papvi_E7.
DR   Pfam; PF00527; E7; 1.
SQ   SEQUENCE   98 AA;  11045 MW;  9C4F8C534CD76C4B CRC64;

  Query Match           100.0%;  Score 67;  DB 2;  Length 98;
  Best Local Similarity   100.0%;  Pred. No. 0.0025;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db         83 LMGTLGIVCPIC 94


RESULT 8
Q8QRD3
ID   Q8QRD3      PRELIMINARY;      PRT;    98 AA.
AC   Q8QRD3;
DT   01-JUN-2002 (TrEMBLrel. 21, Created)
DT   01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
DT   01-OCT-2002 (TrEMBLrel. 22, Last annotation update)
DE   E7 protein.
OS   Human papillomavirus type 16.
OC   Viruses; dsDNA viruses, no RNA stage; Papillomaviridae;
OC   Papillomavirus.
OX   NCBI_TaxID=10581;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=22182962; PubMed=12195358;
RA   Chan P.K.S., Lam C.W., Cheung T.H., Li W.W.H., Lo K.W.K., Chan M.Y.M.,
RA   Cheung J.L.K., Xu L.Y., Cheng A.F.;
RT   "Human papillomavirus type 16 intratypic variant infection and risk
RT   for cervical neoplasia in southern China.";
RL   J. Infect. Dis. 186:696-700(2002).
DR   EMBL; AF486344; AAL96649.1; -.
DR   InterPro; IPR000148; Papvi_E7.
DR   Pfam; PF00527; E7; 1.
SQ   SEQUENCE   98 AA;  11021 MW;  9BD6125946D2C3E1 CRC64;
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  Query Match             100.0%;  Score 67;  DB 2;  Length 98;
  Best Local Similarity   100.0%;  Pred. No. 0.0025;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db         83 LMGTLGIVCPIC 94


RESULT 9
Q8QRD4
ID   Q8QRD4      PRELIMINARY;      PRT;    98 AA.
AC   Q8QRD4;
DT   01-JUN-2002 (TrEMBLrel. 21, Created)
DT   01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
DT   01-OCT-2002 (TrEMBLrel. 22, Last annotation update)
DE   E7 protein.
OS   Human papillomavirus type 16.
OC   Viruses; dsDNA viruses, no RNA stage; Papillomaviridae;
OC   Papillomavirus.
OX   NCBI_TaxID=10581;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=22182962; PubMed=12195358;
RA   Chan P.K.S., Lam C.W., Cheung T.H., Li W.W.H., Lo K.W.K., Chan M.Y.M.,
RA   Cheung J.L.K., Xu L.Y., Cheng A.F.;
RT   "Human papillomavirus type 16 intratypic variant infection and risk
RT   for cervical neoplasia in southern China.";
RL   J. Infect. Dis. 186:696-700(2002).
DR   EMBL; AF486329; AAL96634.1; -.
DR   InterPro; IPR000148; Papvi_E7.
DR   Pfam; PF00527; E7; 1.
SQ   SEQUENCE   98 AA;  11025 MW;  86E24B234CC3281B CRC64;

  Query Match             100.0%;  Score 67;  DB 2;  Length 98;
  Best Local Similarity   100.0%;  Pred. No. 0.0025;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db         83 LMGTLGIVCPIC 94


RESULT 10
Q8V1J0
ID   Q8V1J0      PRELIMINARY;      PRT;    98 AA.
AC   Q8V1J0;
DT   01-MAR-2002 (TrEMBLrel. 20, Created)
DT   01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   E7 protein.
OS   Human papillomavirus type 16.
OC   Viruses; dsDNA viruses, no RNA stage; Papillomaviridae;
OC   Papillomavirus.
OX   NCBI_TaxID=10581;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Jinhu X., Xinxing W., Yun T.;
RL   Submitted (DEC-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF461264; AAL66736.1; -.
DR   Pfam; PF00527; E7; 1.
SQ   SEQUENCE   98 AA;  10997 MW;  9BD610834CCEA59B CRC64;

  Query Match             100.0%;  Score 67;  DB 2;  Length 98;
  Best Local Similarity   100.0%;  Pred. No. 0.0025;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db*        83 LMGTLGIVCPIC 94


RESULT 11
Q778H3
ID   Q778H3      PRELIMINARY;      PRT;    98 AA.
AC   Q778H3;
DT   05-JUL-2004 (TrEMBLrel. 27, Created)
DT   05-JUL-2004 (TrEMBLrel. 27, Last sequence update)
DT   05-JUL-2004 (TrEMBLrel. 27, Last annotation update)
DE   E7 protein (Fragment).
OS   Human papillomavirus type 16.
OC   Viruses; dsDNA viruses, no RNA stage; Papillomaviridae;
OC   Papillomavirus.
OX   NCBI_TaxID=10581;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=20112892; PubMed=10644829;
RA   van Duin M., Snijders P.J., Vossen M.T., Klaassen E., Voorhorst F.,
RA   Verheijen R.H., Helmerhorst T.J., Meijer C.J., Walboomers J.M.;
RT   "Analysis of human papillomavirus type 16 E6 variants in relation to
RT   p53 codon 72 polymorphism genotypes in cervical carcinogenesis.";
RL   J. Gen. Virol. 81:317-325(2000).
DR   EMBL; AJ388063; CAB45119.1; -.
DR   InterPro; IPR000148; Papvi_E7.
DR   Pfam; PF00527; E7; 1.
FT   NON_TER      98     98
SQ   SEQUENCE   98 AA;  10995 MW;  81E53B534CC3281B CRC64;

  Query Match             100.0%;  Score 67;  DB 2;  Length 98;
  Best Local Similarity   100.0%;  Pred. No. 0.0025;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db         83 LMGTLGIVCPIC 94


RESULT 12
Q778H5
ID   Q778H5      PRELIMINARY;      PRT;    98 AA.
AC   Q778H5;
DT   05-JUL-2004 (TrEMBLrel. 27, Created)
DT   05-JUL-2004 (TrEMBLrel. 27, Last sequence update)
DT   05-JUL-2004 (TrEMBLrel. 27, Last annotation update)
DE   E7 protein (Fragment).
OS   Human papillomavirus type 16.
OC   Viruses; dsDNA viruses, no RNA stage; Papillomaviridae;
OC   Papillomavirus.
OX   NCBI_TaxID=10581;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=20112892; PubMed=10644829;
RA   van Duin M., Snijders P.J., Vossen M.T., Klaassen E., Voorhorst F.,
RA   Verheijen R.H., Helmerhorst T.J., Meijer C.J., Walboomers J.M.;
RT   "Analysis of human papillomavirus type 16 E6 variants in relation to
RT   p53 codon 72 polymorphism genotypes in cervical carcinogenesis.";
RL   J. Gen. Virol. 81:317-325(2000).
DR   EMBL; AJ388062; CAB45117.1; -.
DR   InterPro; IPR000148; Papvi_E7.
DR   Pfam; PF00527; E7; 1.
FT   NON_TER      98     98
SQ   SEQUENCE   98 AA;  10995 MW;  81E53B534CC3281B CRC64;

  Query Match             100.0%;  Score 67;  DB 2;  Length 98;
  Best Local Similarity   100.0%;  Pred. No. 0.0025;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db         83 LMGTLGIVCPIC 94


RESULT 13
Q82006
ID   Q82006      PRELIMINARY;      PRT;    97 AA.
```

```
AC   Q82006;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   E7 protein.
OS   Human papillomavirus type 73.
OC   Viruses; dsDNA viruses, no RNA stage; Papillomaviridae;
OC   Papillomavirus.
OX   NCBI_TaxID=51033;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=96213783; PubMed=8635859;
RA   Voelter C., He Y., Delius H., Roy-Burman A., Greenspan J.S.,
RA   Greenspan D., de Villiers E.M.;
RT   "Novel HPV types present in oral papillomatous lesions from patients
RT   with HIV infection.";
RL   Int. J. Cancer 66:453-456(1996).
DR   EMBL; X94165; CAA63883.1; -.
DR   InterPro; IPR000148; Papvi_E7.
DR   Pfam; PF00527; E7; 1.
SQ   SEQUENCE   97 AA;  10970 MW;  651D0345D048F022 CRC64;

  Query Match             89.6%;  Score 60;  DB 2;  Length 97;
  Best Local Similarity   91.7%;  Pred. No. 0.036;
  Matches   11;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              |||||||||| |
Db         82 LMGTLGIVCPNC 93


RESULT 14
Q9QDH2
ID   Q9QDH2      PRELIMINARY;      PRT;    93 AA.
AC   Q9QDH2;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   E7 protein (Fragment).
OS   Human papillomavirus type 16.
OC   Viruses; dsDNA viruses, no RNA stage; Papillomaviridae;
OC   Papillomavirus.
OX   NCBI_TaxID=10581;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Lee H.P., Song Y.S., Kim J.W., Roh J.W., Park N.H., Kang S.B.;
RL   Submitted (SEP-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF187869; AAF13399.1; -.
DR   InterPro; IPR000148; Papvi_E7.
DR   Pfam; PF00527; E7; 1.
FT   NON_TER      93     93
SQ   SEQUENCE   93 AA;  10452 MW;  83281BB2AE2C8A1F CRC64;

  Query Match             86.6%;  Score 58;  DB 2;  Length 93;
  Best Local Similarity   100.0%;  Pred. No. 0.074;
  Matches   11;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPI 11
              |||||||||||
Db         83 LMGTLGIVCPI 93


RESULT 15
Q9QDH4
ID   Q9QDH4      PRELIMINARY;      PRT;    93 AA.
AC   Q9QDH4;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   E7 protein (Fragment).
OS   Human papillomavirus type 16.
OC   Viruses; dsDNA viruses, no RNA stage; Papillomaviridae;
OC   Papillomavirus.
OX   NCBI_TaxID=10581;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Lee H.P., Song Y.S., Kim J.W., Roh J.W., Park N.H., Kang S.B.;
RL   Submitted (SEP-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF187868; AAF13397.1; -.
DR   InterPro; IPR000148; Papvi_E7.
DR   Pfam; PF00527; E7; 1.
FT   NON_TER      93     93
SQ   SEQUENCE   93 AA;  10452 MW;  83281BB2AE2C8A1F CRC64;

  Query Match             86.6%;  Score 58;  DB 2;  Length 93;
  Best Local Similarity   100.0%;  Pred. No. 0.074;
  Matches   11;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPI 11
              |||||||||||
Db         83 LMGTLGIVCPI 93


Search completed: August 19, 2005, 23:33:39
Job time : 75.2703 secs
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OM protein - protein search, using sw model

Run on: August 19, 2005, 23:21:28 ; Search time 154.73 Seconds
(without alignments)
82.738 Million cell updates/sec

Title: US-10-603-062-18
Perfect score: 122
Sequence: 1 MAISGVPVLGFFIIAVLMSAQESWA 25

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1612378 seqs, 512079187 residues

Total number of hits satisfying chosen parameters: 1612378

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : UniProt_03:*
1: uniprot_sprot:*
2: uniprot_trembl:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	122	100.0	27	2	O19670	O19670 homo sapien
2	122	100.0	50	2	O19720	O19720 homo sapien
3	122	100.0	229	2	Q30118	Q30118 homo sapien
4	122	100.0	254	1	2DRA_HUMAN	P01903 homo sapien
5	122	100.0	254	2	Q6EWK6	Q6ewk6 macaca mula
6	122	100.0	254	2	Q6EWL5	Q6ewl5 macaca mula
7	122	100.0	254	2	Q9TP70	Q9tp70 homo sapien
8	118	96.7	254	2	Q6EWK9	Q6ewk9 macaca mula
9	115	94.3	254	1	2DRA_MACMU	Q30631 macaca mula
10	115	94.3	254	2	Q6EWK7	Q6ewk7 macaca mula
11	101.5	83.2	255	2	Q30847	Q30847 oryctolagus
12	101	82.8	254	2	Q30437	Q30437 canis famil
13	83	68.0	251	2	Q31296	Q31296 sciurus abe
14	83	68.0	254	2	Q31297	Q31297 sciurus abe
15	83	68.0	254	2	Q31626	Q31626 sciurus abe
16	78	63.9	255	1	HA21_MOUSE	P01904 mus musculu
17	78	63.9	255	1	HA22_MOUSE	P04224 mus musculu
18	77.5	63.5	253	2	Q30828	Q30828 ovis aries
19	77	63.1	252	2	Q31295	Q31295 sciurus abe
20	77	63.1	254	2	O19432	O19432 felis silve
21	76.5	62.7	243	2	Q30846	Q30846 ovis aries
22	75	61.5	255	2	Q31092	Q31092 mus musculu
23	72.5	59.4	26	2	Q8MGS8	Q8mgs8 bos taurus
24	72.5	59.4	253	2	Q95111	Q95111 bos taurus
25	72.5	59.4	253	2	Q30309	Q30309 bos taurus
26	70.5	57.8	253	2	O19810	O19810 capra hircu
27	70	57.4	253	2	Q31294	Q31294 sciurus abe
28	70	57.4	254	2	O19434	O19434 felis silve
29	68	55.7	255	2	Q31281	Q31281 rattus norv
30	68	55.7	255	2	Q6T4R6	Q6t4r6 rattus norv
31	68	55.7	255	2	Q70RH7	Q70rh7 rattus norv
32	68	55.7	255	2	Q6MG98	Q6mg98 rattus norv
33	65	53.3	251	2	Q7YQ92	Q7yq92 sus scrofa
34	65	53.3	252	2	Q31065	Q31065 sus scrofa
35	65	53.3	252	2	Q6JHY8	Q6jhy8 sus scrofa
36	65	53.3	252	2	Q7YNW7	Q7ynw7 sus scrofa
37	65	53.3	252	2	Q7YQ91	Q7yq91 sus scrofa
38	65	53.3	252	2	Q85ZW4	Q85zw4 sus scrofa
39	65	53.3	252	2	Q860P1	Q860p1 sus scrofa
40	65	53.3	253	2	Q31064	Q31064 sus scrofa
41	62	50.8	138	2	Q9BCL9	Q9bcl9 rattus norv
42	62	50.8	160	2	Q8ZSM2	Q8zsm2 pyrobaculum
43	60	49.2	23	2	Q95553	Q95553 mus musculu
44	57	46.7	434	2	Q69TP3	Q69tp3 oryza sativ
45	52.5	43.0	288	2	Q8AW50	Q8aw50 brachydanio

ALIGNMENTS

RESULT 1
O19670
ID O19670 PRELIMINARY; PRT; 27 AA.
AC O19670;
DT 01-JAN-1998 (TrEMBLrel. 05, Created)
DT 01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
DT 01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE Histocompatibility antigen HLA-DR alpha (Fragment).
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=83169718; PubMed=6403940;
RA Das H.K., Biro P.A., Cohen S.N., Erlich H.A., von Gabain A.,
RA Lawrance S.K., Lemaux P.G., McDevitt H.O., Peterlin B.M., Schulz M.F.,
RA Sood A.K., Weissman S.M.;
RT "Use of synthetic oligonucleotide probes complementary to genes for
RT human HLA-DR alpha and beta as extension primers for the isolation of
RT 5' specific clones.";
RL Proc. Natl. Acad. Sci. U.S.A. 80:1531-1535(1983).
DR EMBL; V00524; CAA23783.1; -.
DR HSSP; P01897; 1LDP.
FT NON_TER 1 1
SQ SEQUENCE 27 AA; 2879 MW; 3A563D2DBDC0B233 CRC64;

Query Match 100.0%; Score 122; DB 2; Length 27;
Best Local Similarity 100.0%; Pred. No. 1.5e-10;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MAISGVPVLGFFIIAVLMSAQESWA 25
|||||||||||||||||||||||||
Db 1 MAISGVPVLGFFIIAVLMSAQESWA 25

RESULT 2
O19720
ID O19720 PRELIMINARY; PRT; 50 AA.
AC O19720;
DT 01-JAN-1998 (TrEMBLrel. 05, Created)
DT 01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
DT 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE MHC class II HLA-DR-alpha chain precursor (Fragment).
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=84146572; PubMed=6422542;
RA Gustafsson K., Wiman K., Larhammar D.G., Rask L., Peterson P.A.;
RT "Signal sequences distinguish class II histocompatibility antigen beta
RT chains of different loci.";

```
RL   Scand. J. Immunol. 19:91-97(1984).
DR   EMBL; M35979; AAA36283.1; -.
DR   GO; GO:0016020; C:membrane; IEA.
DR   GO; GO:0006955; P:immune response; IEA.
DR   InterPro; IPR001003; MHC_II_alpha.
DR   Pfam; PF00993; MHC_II_alpha; 1.
KW   Signal.
FT   SIGNAL        1     25       Potential.
FT   CHAIN        26    >50       Potential.
FT   NON_TER      50     50
SQ   SEQUENCE   50 AA;  5620 MW;  8BFFF88266F8875D CRC64;

  Query Match             100.0%;  Score 122;  DB 2;  Length 50;
  Best Local Similarity   100.0%;  Pred. No. 2.4e-10;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              |||||||||||||||||||||||||
Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 3
Q30118
ID   Q30118      PRELIMINARY;      PRT;   229 AA.
AC   Q30118;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-MAR-2004 (TrEMBLrel. 26, Last annotation update)
DE   MHC cell surface glycoprotein precursor.
GN   Name=HLA-DRA;
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91010755; PubMed=2212658;
RA   Koppelman B., Cresswell P.;
RT   "Rapid nonlysosomal degradation of assembled HLA class II
RT   glycoproteins incorporating a mutant DR alpha-chain.";
RL   J. Immunol. 145:2730-2736(1990).
DR   EMBL; M60333; AAA59787.1; -.
DR   HSSP; P01903; 1SEB.
DR   GO; GO:0016020; C:membrane; IEA.
DR   GO; GO:0006955; P:immune response; IEA.
DR   InterPro; IPR007110; Ig-like.
DR   InterPro; IPR003597; Ig_c1.
DR   InterPro; IPR003006; Ig_MHC.
DR   InterPro; IPR001003; MHC_II_alpha.
DR   Pfam; PF07654; C1-set; 1.
DR   Pfam; PF00993; MHC_II_alpha; 1.
DR   SMART; SM00407; IGc1; 1.
DR   PROSITE; PS00290; IG_MHC; UNKNOWN_1.
KW   Signal.
FT   SIGNAL        1     25       Potential.
FT   CHAIN        26    229       MHC cell surface glycoprotein.
SQ   SEQUENCE   229 AA;  25859 MW;  1FAD7B101F65335C CRC64;

  Query Match             100.0%;  Score 122;  DB 2;  Length 229;
  Best Local Similarity   100.0%;  Pred. No. 8.7e-10;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              |||||||||||||||||||||||||
Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 4
2DRA_HUMAN
ID   2DRA_HUMAN     STANDARD;      PRT;   254 AA.
AC   P01903; Q30160; Q861I2;
DT   21-JUL-1986 (Rel. 01, Created)
DT   21-JUL-1986 (Rel. 01, Last sequence update)
DT   25-OCT-2004 (Rel. 45, Last annotation update)
DE   HLA class II histocompatibility antigen, DR alpha chain precursor (MHC
DE   class II antigen DRA).
GN   Name=HLA-DRA;
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83221632; PubMed=6304715;
RA   Das H.K., Lawrance S.K., Weissman S.M.;
RT   "Structure and nucleotide sequence of the heavy chain gene of HLA-
RT   DR.";
RL   Proc. Natl. Acad. Sci. U.S.A. 80:3543-3547(1983).
RN   [2]
RP   REVISIONS.
RA   Das H.K., Lawrance S.K., Weissman S.M.;
RL   Proc. Natl. Acad. Sci. U.S.A. 80:7024-7024(1983).
RN   [3]
RP   SEQUENCE OF 26-204.
RX   MEDLINE=82263347; PubMed=6955253;
RA   Yang C.-Y., Kratzin H., Gotz H., Thinnes F.P., Kruse T., Egert G.,
RA   Pauly E., Kolbel S., Wernet P., Hilschmann N.;
RT   "Primary structure of class II human histocompatibility antigens. 2nd
RT   Communication. Amino acid sequence of the N-terminal 179 residues of
RT   the alpha-chain of an HLA-Dw2/DR2 alloantigen.";
RL   Hoppe-Seyler's Z. Physiol. Chem. 363:671-676(1982).
RN   [4]
RP   SEQUENCE OF 26-60, AND SEQUENCE OF 32-202 AND 204-254 FROM N.A.
RX   MEDLINE=83025073; PubMed=6812963; DOI=10.1016/0092-8674(82)90021-6;
RA   Larhammar D., Gustafsson K., Claesson L., Bill P., Wiman K.,
RA   Schenning L., Sundelin J., Widmark E., Peterson P.A., Rask L.;
RT   "Alpha chain of HLA-DR transplantation antigens is a member of the
RT   same protein superfamily as the immunoglobulins.";
RL   Cell 30:153-161(1982).
RN   [5]
RP   SEQUENCE FROM N.A. (DR*0101).
RX   MEDLINE=84057142; PubMed=6416803;
RA   Kajimura Y., Toyoda H., Sato M., Miyakoshi S., Kaplan S.A., Ike Y.,
RA   Goyert S.M., Silver J., Hawke D., Shively J.E., Suggs S.V.,
RA   Wallace R.B., Itakura K.;
RT   "Cloning the heavy chain of human HLA-DR antigen using synthetic
RT   oligodeoxyribonucleotides as hybridization probes.";
RL   DNA 2:175-182(1983).
RN   [6]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=84169507; PubMed=6324094;
RA   Schamboeck A., Korman A.J., Kamb A., Strominger J.L.;
RT   "Organization of the transcriptional unit of a human class II
RT   histocompatibility antigen: HLA-DR heavy chain.";
RL   Nucleic Acids Res. 11:8663-8675(1983).
RN   [7]
RP   SEQUENCE FROM N.A. (DR*0101).
RX   MEDLINE=83013020; PubMed=6811954;
RA   Lee J.S., Trowsdale J., Travers P.J., Carey J., Grosveld F.,
RA   Jenkins J., Bodmer W.F.;
RT   "Sequence of an HLA-DR alpha-chain cDNA clone and intron-exon
RT   organization of the corresponding gene.";
RL   Nature 299:750-752(1982).
RN   [8]
RP   SEQUENCE OF 29-254 FROM N.A. (DRA*0102).
RX   MEDLINE=83299916; PubMed=6821129;
RA   Korman A.J., Auffray C., Schamboeck A., Strominger J.L.;
RT   "The amino acid sequence and gene organization of the heavy chain of
RT   the HLA-DR antigen: homology to immunoglobulins.";
RL   Proc. Natl. Acad. Sci. U.S.A. 79:6013-6017(1982).
RN   [9]
RP   SEQUENCE FROM N.A. (DRA*0102).
RX   MEDLINE=91010755; PubMed=2212658;
RA   Koppelman B., Cresswell P.;
RT   "Rapid nonlysosomal degradation of assembled HLA class II
RT   glycoproteins incorporating a mutant DR alpha-chain.";
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RL   J. Immunol. 145:2730-2736(1990).
RN   [10]
RP   SEQUENCE OF 205-254 FROM N.A. (DRA*0102).
RC   TISSUE=Blood;
RX   MEDLINE=22337845; PubMed=12445311;
RA   Kralovicova J., Marsh S.G., Waller M.J., Hammarstrom L.,
RA   Vorechovsky I.;
RT   "The HLA-DRA*0102 allele: correct nucleotide sequence and associated
RT   HLA haplotypes.";
RL   Tissue Antigens 60:266-267(2002).
RN   [11]
RP   X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS) OF 28-207.
RX   MEDLINE=94195388; PubMed=8145819; DOI=10.1038/368215a0;
RA   Stern L.J., Brown J.H., Jardetzky T.J., Gorga J.C., Urban R.G.,
RA   Strominger J.L., Wiley D.C.;
RT   "Crystal structure of the human class II MHC protein HLA-DR1 complexed
RT   with an influenza virus peptide.";
RL   Nature 368:215-221(1994).
RN   [12]
RP   X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS) OF 28-207.
RX   MEDLINE=93302847; PubMed=8316295; DOI=10.1038/364033a0;
RA   Brown J.H., Jardetzky T.S., Gorga J.C., Stern L.J., Urban R.G.,
RA   Strominger J.L., Wiley D.C.;
RT   "Three-dimensional structure of the human class II histocompatibility
RT   antigen HLA-DR1.";
RL   Nature 364:33-39(1993).
RN   [13]
RP   X-RAY CRYSTALLOGRAPHY (2.7 ANGSTROMS) OF COMPLEX WITH SEB.
RX   MEDLINE=94203282; PubMed=8152483; DOI=10.1038/368711a0;
RA   Jardetzky T.S., Brown J.H., Gorga J.C., Stern L.J., Urban R.G.,
RA   Chi Y.I., Stauffacher C., Strominger J.L., Wiley D.C.;
RT   "Three-dimensional structure of a human class II histocompatibility
RT   molecule complexed with superantigen.";
RL   Nature 368:711-718(1994).
RN   [14]
RP   X-RAY CRYSTALLOGRAPHY (2.75 ANGSTROMS).
RX   MEDLINE=96085023; PubMed=7477400; DOI=10.1038/378457a0;
RA   Ghosh P., Amaya M., Mellins E., Wiley D.C.;
RT   "The structure of an intermediate in class II MHC maturation: CLIP
RT   bound to HLA-DR3.";
RL   Nature 378:457-462(1995).
RN   [15]
RP   X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS) OF COMPLEX WITH PEPTIDE FROM
RP   COLLAGEN.
RX   MEDLINE=98014591; PubMed=9354468; DOI=10.1016/S1074-7613(00)80369-6;
RA   Dessen A., Lawrence C.M., Cupo S., Zaller D.M., Wiley D.C.;
RT   "X-ray crystal structure of HLA-DR4 (DRA*0101, DRB1*0401) complexed
RT   with a peptide from human collagen II.";
RL   Immunity 7:473-481(1997).
RN   [16]
RP   X-RAY CRYSTALLOGRAPHY (2.6 ANGSTROMS) OF COMPLEX WITH PEPTIDE FROM
RP   MYELIN BASIC PROTEIN.
RX   MEDLINE=99000672; PubMed=9782128;
RA   Smith K.J., Pyrdol J., Gauthier L., Wiley D.C., Wucherpfennig K.W.;
RT   "Crystal structure of HLA-DR2 (DRA*0101, DRB1*1501) complexed with a
RT   peptide from human myelin basic protein.";
RL   J. Exp. Med. 188:1511-1520(1998).
CC   -!- SUBUNIT: Heterodimer of an alpha chain and a beta chain.
CC   -!- SUBCELLULAR LOCATION: Type I membrane protein.
CC   -!- POLYMORPHISM: The following alleles of DRA are known: DRA*0101 and
CC       DRA*0102. The sequence shown is that of DRA*0101.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; V00523; CAA23782.1; -.
DR   EMBL; J00204; AAA36302.1; -.
DR   EMBL; J00203; AAA36302.1; JOINED.
DR   EMBL; X00274; CAA25076.1; ALT_INIT.
DR   EMBL; K01171; AAA59785.1; -.
DR   EMBL; J00194; AAA36275.1; -.
DR   EMBL; J00201; AAA36301.1; -.
DR   EMBL; M60334; AAA59783.1; -.
DR   EMBL; AF481359; AAO23887.1; -.
DR   PIR; A93952; HLHUDA.
DR   PDB; 1A6A; X-ray; A=30-205.
DR   PDB; 1AQD; X-ray; A/D/G/J=26-217.
DR   PDB; 1BX2; X-ray; A/D=27-206.
DR   PDB; 1D5M; X-ray; A=26-206.
DR   PDB; 1D5X; X-ray; A=26-206.
DR   PDB; 1D5Z; X-ray; A=26-206.
DR   PDB; 1D6E; X-ray; A=26-206.
DR   PDB; 1DLH; X-ray; A/D=28-207.
DR   PDB; 1FV1; X-ray; A/D=26-206.
DR   PDB; 1FYT; X-ray; A=26-206.
DR   PDB; 1H15; X-ray; A/D=26-207.
DR   PDB; 1HQR; X-ray; A=26-206.
DR   PDB; 1HXY; X-ray; A=26-207.
DR   PDB; 1J8H; X-ray; A=26-206.
DR   PDB; 1JWM; X-ray; A=26-207.
DR   PDB; 1JWS; X-ray; A=26-207.
DR   PDB; 1JWU; X-ray; A=26-207.
DR   PDB; 1KG0; X-ray; A=28-207.
DR   PDB; 1KLG; X-ray; A=29-205.
DR   PDB; 1KLU; X-ray; A=29-207.
DR   PDB; 1LO5; X-ray; A=26-207.
DR   PDB; 1SEB; X-ray; A/E=26-206.
DR   PDB; 2SEB; X-ray; A=26-206.
DR   Genew; HGNC:4947; HLA-DRA.
DR   H-InvDB; HIX0005752; -.
DR   MIM; 142860; -.
DR   GO; GO:0005887; C:integral to plasma membrane; NAS.
DR   GO; GO:0045012; F:MHC class II receptor activity; NAS.
DR   GO; GO:0006955; P:immune response; NAS.
DR   InterPro; IPR007110; Ig-like.
DR   InterPro; IPR003597; Ig_c1.
DR   InterPro; IPR003006; Ig_MHC.
DR   InterPro; IPR001003; MHC_II_alpha.
DR   Pfam; PF00047; ig; 1.
DR   Pfam; PF00993; MHC_II_alpha; 1.
DR   SMART; SM00407; IGc1; 1.
DR   PROSITE; PS50835; IG_LIKE; 1.
DR   PROSITE; PS00290; IG_MHC; 1.
KW   3D-structure; Direct protein sequencing; Glycoprotein; MHC II;
KW   Polymorphism; Signal; Transmembrane.
FT   SIGNAL        1     25
FT   CHAIN        26    254       HLA class II histocompatibility antigen,
FT                                 DR alpha chain.

  Query Match             100.0%;  Score 122;  DB 1;  Length 254;
  Best Local Similarity   100.0%;  Pred. No. 9.4e-10;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              |||||||||||||||||||||||||
Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 5
Q6EWK6
ID   Q6EWK6      PRELIMINARY;      PRT;   254 AA.
AC   Q6EWK6;
DT   25-OCT-2004 (TrEMBLrel. 28, Created)
DT   25-OCT-2004 (TrEMBLrel. 28, Last sequence update)
DT   25-OCT-2004 (TrEMBLrel. 28, Last annotation update)
DE   MHC class II antigen.
GN   Name=DRA;
OS   Macaca mulatta (Rhesus macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
```

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OX   NCBI_TaxID=9544;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   PubMed=15128802;
RA   de Groot N., de Groot N.G., Otting N., Heijmans C., Rouweler A.J.M.,
RA   Doxiadis G.G., Bontrop R.E.;
RT   "Genetic make-up of the DR region in rhesus macaques: gene content,
RT   transcripts and pseudogenes.";
RL   J. Immunol. 172:6152-6157(2004).
DR   EMBL; AJ586884; CAE52545.1; -.
DR   GO; GO:0016020; C:membrane; IEA.
DR   GO; GO:0006955; P:immune response; IEA.
DR   InterPro; IPR007110; Ig-like.
DR   InterPro; IPR003597; Ig_c1.
DR   InterPro; IPR003006; Ig_MHC.
DR   InterPro; IPR001003; MHC_II_alpha.
DR   Pfam; PF07654; C1-set; 1.
DR   Pfam; PF00047; ig; 1.
DR   Pfam; PF00993; MHC_II_alpha; 1.
DR   SMART; SM00407; IGc1; 1.
DR   PROSITE; PS50835; IG_LIKE; 1.
DR   PROSITE; PS00290; IG_MHC; UNKNOWN_1.
KW   Glycoprotein; MHC II; Transmembrane.
SQ   SEQUENCE   254 AA;  28289 MW;  EF47C99D00204440 CRC64;

  Query Match             100.0%;  Score 122;  DB 2;  Length 254;
  Best Local Similarity   100.0%;  Pred. No. 9.4e-10;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              |||||||||||||||||||||||||
Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 6
Q6EWL5
ID   Q6EWL5      PRELIMINARY;      PRT;   254 AA.
AC   Q6EWL5;
DT   25-OCT-2004 (TrEMBLrel. 28, Created)
DT   25-OCT-2004 (TrEMBLrel. 28, Last sequence update)
DT   25-OCT-2004 (TrEMBLrel. 28, Last annotation update)
DE   MHC class II antigen.
GN   Name=DRA;
OS   Macaca mulatta (Rhesus macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9544;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   PubMed=15128802;
RA   de Groot N., de Groot N.G., Otting N., Heijmans C., Rouweler A.J.M.,
RA   Doxiadis G.G., Bontrop R.E.;
RT   "Genetic make-up of the DR region in rhesus macaques: gene content,
RT   transcripts and pseudogenes.";
RL   J. Immunol. 172:6152-6157(2004).
DR   EMBL; AJ586875; CAE52536.1; -.
DR   EMBL; AJ586876; CAE52537.1; -.
DR   EMBL; AJ586877; CAE52538.1; -.
DR   EMBL; AJ586878; CAE52539.1; -.
DR   EMBL; AJ586879; CAE52540.1; -.
DR   EMBL; AJ586880; CAE52541.1; -.
DR   EMBL; AJ586874; CAE52535.1; -.
DR   GO; GO:0016020; C:membrane; IEA.
DR   GO; GO:0006955; P:immune response; IEA.
DR   InterPro; IPR007110; Ig-like.
DR   InterPro; IPR003597; Ig_c1.
DR   InterPro; IPR003006; Ig_MHC.
DR   InterPro; IPR001003; MHC_II_alpha.
DR   Pfam; PF07654; C1-set; 1.
DR   Pfam; PF00047; ig; 1.
DR   Pfam; PF00993; MHC_II_alpha; 1.
DR   SMART; SM00407; IGc1; 1.
DR   PROSITE; PS50835; IG_LIKE; 1.
DR   PROSITE; PS00290; IG_MHC; UNKNOWN_1.
KW   Glycoprotein; MHC II; Transmembrane.
SQ   SEQUENCE   254 AA;  28343 MW;  EF47C99D1A904440 CRC64;

  Query Match             100.0%;  Score 122;  DB 2;  Length 254;
  Best Local Similarity   100.0%;  Pred. No. 9.4e-10;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              |||||||||||||||||||||||||
Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 7
Q9TP70
ID   Q9TP70      PRELIMINARY;      PRT;   254 AA.
AC   Q9TP70;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   05-JUL-2004 (TrEMBLrel. 27, Last annotation update)
DE   DJ172K2.4.1 (Major histocompatibility complex, class II, DR alpha,
DE   isoform 1).
GN   Name=HLA-DRA;
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Williams S.;
RL   Submitted (SEP-2001) to the EMBL/GenBank/DDBJ databases.
RN   [2]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Blood;
RX   MEDLINE=22388257; PubMed=12477932; DOI=10.1073/pnas.242603899;
RA   Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
RA   Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,
RA   Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
RA   Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
RA   Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
RA   Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
RA   Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
RA   Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,
RA   Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
RA   Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
RA   Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
RA   Fahey J., Helton E., Ketteman M., Madan A., Rodrigues S., Sanchez A.,
RA   Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
RA   Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
RA   Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M., Butterfield Y.S.,
RA   Krzywinski M.I., Skalska U., Smailus D.E., Schnerch A., Schein J.E.,
RA   Jones S.J., Marra M.A.;
RT   "Generation and initial analysis of more than 15,000 full-length human
RT   and mouse cDNA sequences.";
RL   Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
RN   [3]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Blood;
RA   Strausberg R.;
RL   Submitted (JUN-2002) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; Z84814; CAB06609.1; -.
DR   EMBL; BC032350; AAH32350.1; -.
DR   HSSP; P01903; 1SEB.
DR   GO; GO:0016020; C:membrane; IEA.
DR   GO; GO:0006955; P:immune response; IEA.
DR   InterPro; IPR007110; Ig-like.
DR   InterPro; IPR003597; Ig_c1.
DR   InterPro; IPR003006; Ig_MHC.
DR   InterPro; IPR001003; MHC_II_alpha.
DR   Pfam; PF07654; C1-set; 1.
DR   Pfam; PF00993; MHC_II_alpha; 1.
DR   SMART; SM00407; IGc1; 1.
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DR   PROSITE; PS50835; IG_LIKE; 1.
DR   PROSITE; PS00290; IG_MHC; UNKNOWN_1.
SQ   SEQUENCE   254 AA;  28621 MW;  3CD1CDBA89D92350 CRC64;

  Query Match             100.0%;  Score 122;  DB 2;  Length 254;
  Best Local Similarity   100.0%;  Pred. No. 9.4e-10;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              |||||||||||||||||||||||||
Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 8
Q6EWK9
ID   Q6EWK9      PRELIMINARY;      PRT;   254 AA.
AC   Q6EWK9;
DT   25-OCT-2004 (TrEMBLrel. 28, Created)
DT   25-OCT-2004 (TrEMBLrel. 28, Last sequence update)
DT   25-OCT-2004 (TrEMBLrel. 28, Last annotation update)
DE   MHC class II antigen.
GN   Name=DRA;
OS   Macaca mulatta (Rhesus macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9544;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   PubMed=15128802;
RA   de Groot N., de Groot N.G., Otting N., Heijmans C., Rouweler A.J.M.,
RA   Doxiadis G.G., Bontrop R.E.;
RT   "Genetic make-up of the DR region in rhesus macaques: gene content,
RT   transcripts and pseudogenes.";
RL   J. Immunol. 172:6152-6157(2004).
DR   EMBL; AJ586881; CAE52542.1; -.
DR   GO; GO:0016020; C:membrane; IEA.
DR   GO; GO:0006955; P:immune response; IEA.
DR   InterPro; IPR007110; Ig-like.
DR   InterPro; IPR003597; Ig_c1.
DR   InterPro; IPR003006; Ig_MHC.
DR   InterPro; IPR001003; MHC_II_alpha.
DR   Pfam; PF07654; C1-set; 1.
DR   Pfam; PF00047; ig; 1.
DR   Pfam; PF00993; MHC_II_alpha; 1.
DR   SMART; SM00407; IGc1; 1.
DR   PROSITE; PS50835; IG_LIKE; 1.
DR   PROSITE; PS00290; IG_MHC; UNKNOWN_1.
KW   Glycoprotein; MHC II; Transmembrane.
SQ   SEQUENCE   254 AA;  28361 MW;  9C47C29AB990433C CRC64;

  Query Match             96.7%;  Score 118;  DB 2;  Length 254;
  Best Local Similarity   92.0%;  Pred. No. 3.7e-09;
  Matches   23;  Conservative    2;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              ||:|||||||||||||:|||||||||
Db          1 MAVSGVPVLGFFIIAMLMSAQESWA 25


RESULT 9
2DRA_MACMU
ID   2DRA_MACMU     STANDARD;      PRT;   254 AA.
AC   Q30631;
DT   10-OCT-2003 (Rel. 42, Created)
DT   10-OCT-2003 (Rel. 42, Last sequence update)
DT   05-JUL-2004 (Rel. 44, Last annotation update)
DE   HLA class II histocompatibility antigen, DR alpha chain precursor (MHC
DE   class II antigen DRA).
GN   Name=HLA-DRA;
OS   Macaca mulatta (Rhesus macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9544;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=96053521; PubMed=7558932; DOI=10.1016/0198-8859(94)00155-J;
RA   Lekutis C., Letvin N.L.;
RT   "Biochemical and molecular characterization of rhesus monkey major
RT   histocompatibility complex class II DR.";
RL   Hum. Immunol. 43:72-80(1995).
CC   -!- SUBUNIT: Heterodimer of an alpha chain and a beta chain.
CC   -!- SUBCELLULAR LOCATION: Type I membrane protein.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
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CC   use by non-profit institutions as long as its content is in no way
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CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; L27739; AAB63305.1; -.
DR   HSSP; P01903; 1SEB.
DR   InterPro; IPR007110; Ig-like.
DR   InterPro; IPR003597; Ig_c1.
DR   InterPro; IPR003006; Ig_MHC.
DR   InterPro; IPR001003; MHC_II_alpha.
DR   Pfam; PF00047; ig; 1.
DR   Pfam; PF00993; MHC_II_alpha; 1.
DR   SMART; SM00407; IGc1; 1.
DR   PROSITE; PS50835; IG_LIKE; 1.
DR   PROSITE; PS00290; IG_MHC; 1.
KW   Glycoprotein; MHC II; Signal; Transmembrane.
FT   SIGNAL       1     25       By similarity.
FT   CHAIN       26    254       HLA class II histocompatibility antigen,
FT                               DR alpha chain.
FT   DOMAIN      26    109       Extracellular alpha-1.
FT   DOMAIN     110    203       Extracellular alpha-2.
FT   DOMAIN     204    216       Connecting peptide.
FT   TRANSMEM   217    239
FT   DOMAIN     240    254       Cytoplasmic.
FT   DISULFID   132    188       By similarity.
FT   CARBOHYD   103    103       N-linked (GlcNAc. . .) (Potential).
SQ   SEQUENCE   254 AA;  28405 MW;  8587C99E22944443 CRC64;

  Query Match             94.3%;  Score 115;  DB 1;  Length 254;
  Best Local Similarity   96.0%;  Pred. No. 1e-08;
  Matches   24;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              || |||||||||||||||||||||||
Db          1 MAESGVPVLGFFIIAVLMSAQESWA 25


RESULT 10
Q6EWK7
ID   Q6EWK7      PRELIMINARY;      PRT;   254 AA.
AC   Q6EWK7;
DT   25-OCT-2004 (TrEMBLrel. 28, Created)
DT   25-OCT-2004 (TrEMBLrel. 28, Last sequence update)
DT   25-OCT-2004 (TrEMBLrel. 28, Last annotation update)
DE   MHC class II antigen.
GN   Name=DRA;
OS   Macaca mulatta (Rhesus macaque).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Cercopithecidae;
OC   Cercopithecinae; Macaca.
OX   NCBI_TaxID=9544;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   PubMed=15128802;
RA   de Groot N., de Groot N.G., Otting N., Heijmans C., Rouweler A.J.M.,
RA   Doxiadis G.G., Bontrop R.E.;
RT   "Genetic make-up of the DR region in rhesus macaques: gene content,
```

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RT   transcripts and pseudogenes.";
RL   J. Immunol. 172:6152-6157(2004).
DR   EMBL; AJ586883; CAE52544.1; -.
DR   EMBL; AJ586882; CAE52543.1; -.
DR   GO; GO:0016020; C:membrane; IEA.
DR   GO; GO:0006955; P:immune response; IEA.
DR   InterPro; IPR007110; Ig-like.
DR   InterPro; IPR003597; Ig_c1.
DR   InterPro; IPR003006; Ig_MHC.
DR   InterPro; IPR001003; MHC_II_alpha.
DR   Pfam; PF07654; C1-set; 1.
DR   Pfam; PF00047; ig; 1.
DR   Pfam; PF00993; MHC_II_alpha; 1.
DR   SMART; SM00407; IGc1; 1.
DR   PROSITE; PS50835; IG_LIKE; 1.
DR   PROSITE; PS00290; IG_MHC; UNKNOWN_1.
KW   Glycoprotein; MHC II; Transmembrane.
SQ   SEQUENCE   254 AA;  28358 MW;  8347C99E26904447 CRC64;

  Query Match             94.3%;  Score 115;  DB 2;  Length 254;
  Best Local Similarity   96.0%;  Pred. No. 1e-08;
  Matches   24;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              || |||||||||||||||||||||||
Db          1 MAESGVPVLGFFIIAVLMSAQESWA 25


RESULT 11
Q30847
ID   Q30847      PRELIMINARY;      PRT;   255 AA.
AC   Q30847;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-MAR-2004 (TrEMBLrel. 26, Last annotation update)
DE   Integral membrane protein precursor.
GN   Name=RLA-DR-alpha;
OS   Oryctolagus cuniculus (Rabbit).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
OX   NCBI_TaxID=9986;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=89339606; PubMed=2759665;
RA   Laverriere A., Kulaga H., Kindt T.J., LeGuern C., Marche P.N.;
RT   "A rabbit class II MHC gene with strong similarities to HLA-DR-
RT   alpha.";
RL   Immunogenetics 30:137-140(1989).
DR   EMBL; M28161; AAA31394.1; -.
DR   PIR; A45881; A45881.
DR   HSSP; P01903; 1HQR.
DR   GO; GO:0016020; C:membrane; IEA.
DR   GO; GO:0006955; P:immune response; IEA.
DR   InterPro; IPR007110; Ig-like.
DR   InterPro; IPR003597; Ig_c1.
DR   InterPro; IPR003006; Ig_MHC.
DR   InterPro; IPR001003; MHC_II_alpha.
DR   Pfam; PF07654; C1-set; 1.
DR   Pfam; PF00993; MHC_II_alpha; 1.
DR   SMART; SM00407; IGc1; 1.
DR   PROSITE; PS50835; IG_LIKE; 1.
DR   PROSITE; PS00290; IG_MHC; UNKNOWN_1.
KW   Signal.
FT   SIGNAL        1     26       Potential.
FT   CHAIN        27    255       integral membrane protein.
SQ   SEQUENCE   255 AA;  28622 MW;  5F8BAA3135F799E9 CRC64;

  Query Match             83.2%;  Score 101.5;  DB 2;  Length 255;
  Best Local Similarity   84.6%;  Pred. No. 1e-06;
  Matches   22;  Conservative    2;  Mismatches    1;  Indels    1;  Gaps    1;

Qy          1 MAIS-GVPVLGFFIIAVLMSAQESWA 25
              |||| |||||||||||:||| |:|||
Db          1 MAISGGVPVLGFFIIAILMSPQKSWA 26


RESULT 12
Q30437
ID   Q30437      PRELIMINARY;      PRT;   254 AA.
AC   Q30437;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-MAR-2004 (TrEMBLrel. 26, Last annotation update)
DE   MHC class II DR alpha chain.
GN   Name=DLA DRA;
OS   Canis familiaris (Dog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
OX   NCBI_TaxID=9615;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Spleen;
RX   MEDLINE=95366071; PubMed=7638867;
RA   Wagner J.L., DeRose S.A., Burnett R.C., Storb R.;
RT   "Nucleotide sequence and polymorphism analysis of canine DRA cDNA
RT   clones.";
RL   Tissue Antigens 45:284-287(1995).
DR   EMBL; L37332; AAA99463.1; -.
DR   HSSP; P01903; 1HQR.
DR   GO; GO:0016020; C:membrane; IEA.
DR   GO; GO:0006955; P:immune response; IEA.
DR   InterPro; IPR007110; Ig-like.
DR   InterPro; IPR003597; Ig_c1.
DR   InterPro; IPR003006; Ig_MHC.
DR   InterPro; IPR001003; MHC_II_alpha.
DR   Pfam; PF07654; C1-set; 1.
DR   Pfam; PF00993; MHC_II_alpha; 1.
DR   SMART; SM00407; IGc1; 1.
DR   PROSITE; PS50835; IG_LIKE; 1.
DR   PROSITE; PS00290; IG_MHC; UNKNOWN_1.
SQ   SEQUENCE   254 AA;  28615 MW;  0CEA08DA8C09BCC5 CRC64;

  Query Match             82.8%;  Score 101;  DB 2;  Length 254;
  Best Local Similarity   80.0%;  Pred. No. 1.2e-06;
  Matches   20;  Conservative    1;  Mismatches    4;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              | |||||||||||:| ||  |||||
Db          1 MTISGVPVLGFFIMAFLMGPQESWA 25


RESULT 13
Q31296
ID   Q31296      PRELIMINARY;      PRT;   251 AA.
AC   Q31296;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-MAR-2004 (TrEMBLrel. 26, Last annotation update)
DE   MHC class II DR-alpha.
OS   Sciurus aberti (Abert's squirrel).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Sciuridae; Sciurinae;
OC   Sciurus.
OX   NCBI_TaxID=10007;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Spleen;
RA   Wettstein P.J.;
RL   Submitted (AUG-1992) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; M97624; AAA42362.1; -.
DR   HSSP; P01903; 2SEB.
DR   GO; GO:0016020; C:membrane; IEA.
DR   GO; GO:0006955; P:immune response; IEA.
DR   InterPro; IPR007110; Ig-like.
DR   InterPro; IPR003597; Ig_c1.
DR   InterPro; IPR003006; Ig_MHC.
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DR   InterPro; IPR001003; MHC_II_alpha.
DR   Pfam; PF07654; C1-set; 1.
DR   Pfam; PF00993; MHC_II_alpha; 1.
DR   SMART; SM00407; IGc1; 1.
DR   PROSITE; PS50835; IG_LIKE; 1.
DR   PROSITE; PS00290; IG_MHC; UNKNOWN_1.
SQ   SEQUENCE   251 AA;  28437 MW;  566AA904EA821A90 CRC64;

  Query Match             68.0%;  Score 83;  DB 2;  Length 251;
  Best Local Similarity   72.0%;  Pred. No. 0.00053;
  Matches   18;  Conservative    2;  Mismatches    5;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              || | | ||||| :||||: |||||
Db          1 MARSEVMVLGFFFMAVLMNPQESWA 25


RESULT 14
Q31297
ID   Q31297      PRELIMINARY;      PRT;   254 AA.
AC   Q31297;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-MAR-2004 (TrEMBLrel. 26, Last annotation update)
DE   MHC class II DR-alpha.
OS   Sciurus aberti (Abert's squirrel).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Sciuridae; Sciurinae;
OC   Sciurus.
OX   NCBI_TaxID=10007;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Spleen;
RA   Wettstein P.J.;
RL   Submitted (AUG-1992) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; M97628; AAA42366.1; -.
DR   HSSP; P01903; 1HQR.
DR   GO; GO:0016020; C:membrane; IEA.
DR   GO; GO:0006955; P:immune response; IEA.
DR   InterPro; IPR007110; Ig-like.
DR   InterPro; IPR003597; Ig_c1.
DR   InterPro; IPR003006; Ig_MHC.
DR   InterPro; IPR001003; MHC_II_alpha.
DR   Pfam; PF07654; C1-set; 1.
DR   Pfam; PF00993; MHC_II_alpha; 1.
DR   SMART; SM00407; IGc1; 1.
DR   PROSITE; PS50835; IG_LIKE; 1.
DR   PROSITE; PS00290; IG_MHC; UNKNOWN_1.
SQ   SEQUENCE   254 AA;  28758 MW;  505DC807A08F310B CRC64;

  Query Match             68.0%;  Score 83;  DB 2;  Length 254;
  Best Local Similarity   72.0%;  Pred. No. 0.00054;
  Matches   18;  Conservative    2;  Mismatches    5;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              || | | ||||| :||||: |||||
Db          1 MARSEVMVLGFFFMAVLMNPQESWA 25


RESULT 15
Q31626
ID   Q31626      PRELIMINARY;      PRT;   254 AA.
AC   Q31626;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   05-JUL-2004 (TrEMBLrel. 27, Last annotation update)
DE   MHC class II DR-alpha.
OS   Sciurus aberti (Abert's squirrel).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Sciuridae; Sciurinae;
OC   Sciurus.
OX   NCBI_TaxID=10007;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Spleen;
RA   Wettstein P.J.;
RL   Submitted (AUG-1992) to the EMBL/GenBank/DDBJ databases.
RN   [2]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Spleen;
RA   Wettstein P.J., Jin L., Chakraborty R., States J.;
RL   Submitted (AUG-1992) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; M97622; AAA42360.1; -.
DR   EMBL; M97621; AAA42359.1; -.
DR   EMBL; M97623; AAA42361.1; -.
DR   EMBL; M97625; AAA42363.1; -.
DR   EMBL; M97626; AAA42364.1; -.
DR   EMBL; M97627; AAA42365.1; -.
DR   EMBL; M97629; AAA42367.1; -.
DR   EMBL; M97615; AAA42355.1; -.
DR   HSSP; P01903; 2SEB.
DR   GO; GO:0016020; C:membrane; IEA.
DR   GO; GO:0006955; P:immune response; IEA.
DR   InterPro; IPR007110; Ig-like.
DR   InterPro; IPR003597; Ig_c1.
DR   InterPro; IPR003006; Ig_MHC.
DR   InterPro; IPR001003; MHC_II_alpha.
DR   Pfam; PF07654; C1-set; 1.
DR   Pfam; PF00993; MHC_II_alpha; 1.
DR   SMART; SM00407; IGc1; 1.
DR   PROSITE; PS50835; IG_LIKE; 1.
DR   PROSITE; PS00290; IG_MHC; UNKNOWN_1.
SQ   SEQUENCE   254 AA;  28731 MW;  F377E107A0951800 CRC64;

  Query Match             68.0%;  Score 83;  DB 2;  Length 254;
  Best Local Similarity   72.0%;  Pred. No. 0.00054;
  Matches   18;  Conservative    2;  Mismatches    5;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              || | | ||||| :||||: |||||
Db          1 MARSEVMVLGFFFMAVLMNPQESWA 25


Search completed: August 19, 2005, 23:33:40
Job time : 155.73 secs
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OM protein - protein search, using sw model

Run on: August 19, 2005, 23:29:59 ; Search time 30.8108 Seconds
(without alignments)
60.669 Million cell updates/sec

Title: US-10-603-062-16
Perfect score: 67
Sequence: 1 LMGTLGIVCPIC 12

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 718547 seqs, 155772573 residues

Total number of hits satisfying chosen parameters: 718547

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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3: /cgn2_6/ptodata/2/paa/US07_NEW_COMB.pep:*
4: /cgn2_6/ptodata/2/paa/US08_NEW_COMB.pep:*
5: /cgn2_6/ptodata/2/paa/US09_NEW_COMB.pep:*
6: /cgn2_6/ptodata/2/paa/US10_NEW_COMB.pep:*
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8: /cgn2_6/ptodata/2/paa/US60_NEW_COMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	67	100.0	15	6	US-10-817-970-2091	Sequence 2091, Ap
2	67	100.0	98	1	PCT-US04-05292-6	Sequence 6, Appli
3	67	100.0	98	1	PCT-US04-13756-3	Sequence 3, Appli
4	67	100.0	98	1	PCT-US04-05292A-6	Sequence 6, Appli
5	67	100.0	98	6	US-10-530-253-14	Sequence 14, Appl
6	67	100.0	98	7	US-11-077-939-5	Sequence 5, Appli
7	67	100.0	98	7	US-11-179-478-4	Sequence 4, Appli
8	67	100.0	99	1	PCT-US04-05292-5	Sequence 5, Appli
9	67	100.0	99	1	PCT-US04-05292-65	Sequence 65, Appl
10	67	100.0	99	1	PCT-US04-13756-2	Sequence 2, Appli
11	67	100.0	99	1	PCT-US04-05292A-5	Sequence 5, Appli
12	67	100.0	99	1	PCT-US04-05292A-65	Sequence 65, Appl
13	67	100.0	127	1	PCT-US04-13756-7	Sequence 7, Appli
14	67	100.0	166	1	PCT-US04-05292-53	Sequence 53, Appl
15	67	100.0	166	1	PCT-US04-05292A-53	Sequence 53, Appl
16	67	100.0	185	7	US-11-072-288-2	Sequence 2, Appli
17	67	100.0	248	6	US-10-530-253-1	Sequence 1, Appli
18	67	100.0	248	6	US-10-530-253-3	Sequence 3, Appli
19	67	100.0	248	6	US-10-530-253-7	Sequence 7, Appli
20	67	100.0	248	6	US-10-530-253-9	Sequence 9, Appli
21	67	100.0	289	1	PCT-US04-05292-63	Sequence 63, Appl
22	67	100.0	289	1	PCT-US04-05292A-63	Sequence 63, Appl
23	67	100.0	349	1	PCT-US04-05292-18	Sequence 18, Appl
24	67	100.0	349	1	PCT-US04-05292-21	Sequence 21, Appl
25	67	100.0	349	1	PCT-US04-05292A-18	Sequence 18, Appl
26	67	100.0	349	1	PCT-US04-05292A-21	Sequence 21, Appl
27	67	100.0	701	1	PCT-US04-05292-58	Sequence 58, Appl
28	67	100.0	701	1	PCT-US04-13756-12	Sequence 12, Appl
29	67	100.0	701	1	PCT-US04-05292A-58	Sequence 58, Appl
30	67	100.0	805	6	US-10-918-337-9	Sequence 9, Appli
31	58	86.6	15	6	US-10-817-970-2090	Sequence 2090, Ap
32	58	86.6	375	5	US-09-000-004-22	Sequence 22, Appl
33	58	86.6	465	5	US-09-000-004-24	Sequence 24, Appl
34	58	86.6	1587	5	US-09-000-004-46	Sequence 46, Appl
35	55	82.1	99	6	US-10-530-253-30	Sequence 30, Appl
36	55	82.1	248	6	US-10-530-253-5	Sequence 5, Appli
37	55	82.1	248	6	US-10-530-253-11	Sequence 11, Appl
38	54	80.6	36	5	US-09-000-004-30	Sequence 30, Appl
39	53	79.1	15	6	US-10-817-970-2103	Sequence 2103, Ap
40	53	79.1	15	6	US-10-817-970-13007	Sequence 13007, A
41	53	79.1	15	6	US-10-817-970-13008	Sequence 13008, A
42	53	79.1	97	6	US-10-530-253-29	Sequence 29, Appl
43	52	77.6	9	5	US-09-380-534-274	Sequence 274, App
44	52	77.6	9	5	US-09-380-534-435	Sequence 435, App
45	52	77.6	9	5	US-09-776-232-274	Sequence 274, App

ALIGNMENTS

RESULT 1
US-10-817-970-2091
; Sequence 2091, Application US/10817970
; GENERAL INFORMATION:
; APPLICANT: Grey, H.
; APPLICANT: Sette, A.
; APPLICANT: Sidney, J.
; APPLICANT: Southwood, S.
; APPLICANT: Kubo, R.
; APPLICANT: Celis, E.
; APPLICANT: Chesnut, R.
; APPLICANT: Kast, W.M.
; TITLE OF INVENTION: HLA Binding Motifs and Peptides and Their Uses
; FILE REFERENCE: 2060.0500000
; CURRENT APPLICATION NUMBER: US/10/817,970
; CURRENT FILING DATE: 2004-04-06
; PRIOR APPLICATION NUMBER: 08/821,739
; PRIOR FILING DATE: 1997-03-20
; PRIOR APPLICATION NUMBER: 60/013,833
; PRIOR FILING DATE: 1996-03-21
; PRIOR APPLICATION NUMBER: 08/589,107
; PRIOR FILING DATE: 1996-01-23
; PRIOR APPLICATION NUMBER: 08/451,913
; PRIOR FILING DATE: 1995-05-26
; PRIOR APPLICATION NUMBER: 08/186,266
; PRIOR FILING DATE: 1994-01-25
; PRIOR APPLICATION NUMBER: 08/159,339
; PRIOR FILING DATE: 1993-11-29
; PRIOR APPLICATION NUMBER: 08/103,396
; PRIOR FILING DATE: 1993-08-06
; PRIOR APPLICATION NUMBER: 08/027,746
; PRIOR FILING DATE: 1993-03-05
; PRIOR APPLICATION NUMBER: 07/926,666
; PRIOR FILING DATE: 1992-08-07
; PRIOR APPLICATION NUMBER: 08/347,610
; PRIOR FILING DATE: 1994-12-01
; Remaining Prior Application data removed - See File Wrapper or PALM.
; NUMBER OF SEQ ID NOS: 14635
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 2091
; LENGTH: 15
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Peptide
US-10-817-970-2091

Query Match 100.0%; Score 67; DB 6; Length 15;

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  Best Local Similarity   100.0%;  Pred. No. 0.00024;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          3 LMGTLGIVCPIC 14


RESULT 2
PCT-US04-05292-6
; Sequence 6, Application PC/TUS0405292
; GENERAL INFORMATION:
;  APPLICANT: Johns Hopkins University
;  TITLE OF INVENTION: Molecular Vaccines Employing Nucleic Acid Encoding Anti-Apoptotic
;  TITLE OF INVENTION:  Proteins
;  FILE REFERENCE: 26148.jhu16/pct
;  CURRENT APPLICATION NUMBER: PCT/US04/05292
;  CURRENT FILING DATE:  2002-02-24
;  PRIOR APPLICATION NUMBER: US60/533,792
;  PRIOR FILING DATE: 2003-12-31
;  PRIOR APPLICATION NUMBER: US60/488,527
;  PRIOR FILING DATE: 2003-07-18
;  PRIOR APPLICATION NUMBER: US60/449,429
;  PRIOR FILING DATE: 2003-02-24
;  NUMBER OF SEQ ID NOS: 91
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 6
;   LENGTH: 98
;   TYPE: PRT
;   ORGANISM: Human papillomavirus
PCT-US04-05292-6

  Query Match             100.0%;  Score 67;  DB 1;  Length 98;
  Best Local Similarity   100.0%;  Pred. No. 0.0016;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db         83 LMGTLGIVCPIC 94


RESULT 3
PCT-US04-13756-3
; Sequence 3, Application PC/TUS0413756
; GENERAL INFORMATION:
;  APPLICANT: JOHNS HOPKINS UNIVERSITY
;  TITLE OF INVENTION: ANTI-CANCER DNA VACCINE EMPLOYING PLASMIDS ENCODING SIGNAL
;  TITLE OF INVENTION:  SEQUENCE, MUTANT ONCOPROTEIN ANTIGEN, AND HEAT SHOCK PROTEIN
;  FILE REFERENCE: JHU-18/PCT
;  CURRENT APPLICATION NUMBER: PCT/US04/13756
;  CURRENT FILING DATE:  2004-05-05
;  PRIOR APPLICATION NUMBER: US 60/467,602
;  PRIOR FILING DATE: 2003-05-05
;  NUMBER OF SEQ ID NOS: 16
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 3
;   LENGTH: 98
;   TYPE: PRT
;   ORGANISM: Human papillomavirus
PCT-US04-13756-3

  Query Match             100.0%;  Score 67;  DB 1;  Length 98;
  Best Local Similarity   100.0%;  Pred. No. 0.0016;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db         83 LMGTLGIVCPIC 94


RESULT 4
PCT-US04-05292A-6
; Sequence 6, Application PC/TUS0405292A
; GENERAL INFORMATION:
;  APPLICANT: Johns Hopkins University
;  TITLE OF INVENTION: Molecular Vaccines Employing Nucleic Acid Encoding Anti-Apoptotic
;  TITLE OF INVENTION:  Proteins
;  FILE REFERENCE: 26148-jhu-16/pct
;  CURRENT APPLICATION NUMBER: PCT/US04/05292A
;  CURRENT FILING DATE:  2004-02-24
;  PRIOR APPLICATION NUMBER: US60/533,792
;  PRIOR FILING DATE: 2003-12-31
;  PRIOR APPLICATION NUMBER: US60/488,527
;  PRIOR FILING DATE: 2003-07-18
;  PRIOR APPLICATION NUMBER: US60/449,429
;  PRIOR FILING DATE: 2003-02-24
;  NUMBER OF SEQ ID NOS: 91
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 6
;   LENGTH: 98
;   TYPE: PRT
;   ORGANISM: Human papillomavirus
PCT-US04-05292A-6

  Query Match             100.0%;  Score 67;  DB 1;  Length 98;
  Best Local Similarity   100.0%;  Pred. No. 0.0016;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db         83 LMGTLGIVCPIC 94


RESULT 5
US-10-530-253-14
; Sequence 14, Application US/10530253
; GENERAL INFORMATION:
;  APPLICANT: Cassetti, Maria C.
;  APPLICANT:  Smith, Larry
;  APPLICANT:  Jeffrey K. Pullen
;  APPLICANT:  Susan P. McElhiney
;  TITLE OF INVENTION: HUMAN PAPILLOMAVIRUS POLYPEPTIDES AND IMMUNOGENIC COMPOSITIONS
;  FILE REFERENCE: 00630/100M137-US2
;  CURRENT APPLICATION NUMBER: US/10/530,253
;  CURRENT FILING DATE:  2005-04-04
;  PRIOR APPLICATION NUMBER: PCT/US2003/031726
;  PRIOR FILING DATE: 2003-10-02
;  PRIOR APPLICATION NUMBER: US 60/415,929
;  PRIOR FILING DATE: 2002-10-03
;  NUMBER OF SEQ ID NOS: 65
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 14
;   LENGTH: 98
;   TYPE: PRT
;   ORGANISM: Human papillomavirus type 16
US-10-530-253-14

  Query Match             100.0%;  Score 67;  DB 6;  Length 98;
  Best Local Similarity   100.0%;  Pred. No. 0.0016;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db         83 LMGTLGIVCPIC 94


RESULT 6
US-11-077-939-5
; Sequence 5, Application US/11077939
; GENERAL INFORMATION:
;  APPLICANT: Frazer, Ian Hector
;  TITLE OF INVENTION: Gene Expression System Based on Codon Translation Efficiency
;  FILE REFERENCE: 10338-11U1
;  CURRENT APPLICATION NUMBER: US/11/077,939
;  CURRENT FILING DATE:  2005-03-11
;  PRIOR APPLICATION NUMBER: PCT/AU2003/001200
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; PRIOR FILING DATE: 2003-09-12
; PRIOR APPLICATION NUMBER: US 60/410410
; PRIOR FILING DATE: 2002-09-13
; NUMBER OF SEQ ID NOS: 28
; SOFTWARE: PatentIn version 3.2
; SEQ ID NO 5
; LENGTH: 98
; TYPE: PRT
; ORGANISM: Human papillomavirus type 16
US-11-077-939-5

Query Match 100.0%; Score 67; DB 7; Length 98;
Best Local Similarity 100.0%; Pred. No. 0.0016;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LMGTLGIVCPIC 12
||||||||||||
Db 83 LMGTLGIVCPIC 94

RESULT 7
US-11-179-478-4
; Sequence 4, Application US/11179478
; GENERAL INFORMATION:
; APPLICANT: BURGER, Alexander
; APPLICANT: HALLEK, Michael
; TITLE OF INVENTION: PAPILLOMA VIRUS CAPSOMERE VACCINE
; TITLE OF INVENTION: FORMULATIONS AND METHODS OF USE
; NUMBER OF SEQUENCES: 28
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: FOLEY & LARDNER
; STREET: 3000 K Street, N.W.
; CITY: Washington
; STATE: D.C.
; COUNTRY: U.S.A.
; ZIP: 20007-5109
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/11/179,478
; FILING DATE: 13-JULY-2005
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US/10/654,129
; FILING DATE: 04-Sep-2003
; CLASSIFICATION:
; ATTORNEY/AGENT INFORMATION:
; NAME: Sandercock, Colin G.
; REGISTRATION NUMBER: 31,298
; REFERENCE/DOCKET NUMBER: 37067/102
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (202) 672-5300
; TELEFAX: (202) 672-5399
; INFORMATION FOR SEQ ID NO: 4:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 98 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-11-179-478-4

Query Match 100.0%; Score 67; DB 7; Length 98;
Best Local Similarity 100.0%; Pred. No. 0.0016;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LMGTLGIVCPIC 12
||||||||||||
Db 83 LMGTLGIVCPIC 94

RESULT 8
PCT-US04-05292-5
; Sequence 5, Application PC/TUS0405292
; GENERAL INFORMATION:
; APPLICANT: Johns Hopkins University
; TITLE OF INVENTION: Molecular Vaccines Employing Nucleic Acid Encoding Anti-Apoptotic
; TITLE OF INVENTION: Proteins
; FILE REFERENCE: 26148.jhu16/pct
; CURRENT APPLICATION NUMBER: PCT/US04/05292
; CURRENT FILING DATE: 2002-02-24
; PRIOR APPLICATION NUMBER: US60/533,792
; PRIOR FILING DATE: 2003-12-31
; PRIOR APPLICATION NUMBER: US60/488,527
; PRIOR FILING DATE: 2003-07-18
; PRIOR APPLICATION NUMBER: US60/449,429
; PRIOR FILING DATE: 2003-02-24
; NUMBER OF SEQ ID NOS: 91
; SOFTWARE: PatentIn version 3.2
; SEQ ID NO 5
; LENGTH: 99
; TYPE: PRT
; ORGANISM: Human papillomavirus
PCT-US04-05292-5

Query Match 100.0%; Score 67; DB 1; Length 99;
Best Local Similarity 100.0%; Pred. No. 0.0016;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LMGTLGIVCPIC 12
||||||||||||
Db 83 LMGTLGIVCPIC 94

RESULT 9
PCT-US04-05292-65
; Sequence 65, Application PC/TUS0405292
; GENERAL INFORMATION:
; APPLICANT: Johns Hopkins University
; TITLE OF INVENTION: Molecular Vaccines Employing Nucleic Acid Encoding Anti-Apoptotic
; TITLE OF INVENTION: Proteins
; FILE REFERENCE: 26148.jhu16/pct
; CURRENT APPLICATION NUMBER: PCT/US04/05292
; CURRENT FILING DATE: 2002-02-24
; PRIOR APPLICATION NUMBER: US60/533,792
; PRIOR FILING DATE: 2003-12-31
; PRIOR APPLICATION NUMBER: US60/488,527
; PRIOR FILING DATE: 2003-07-18
; PRIOR APPLICATION NUMBER: US60/449,429
; PRIOR FILING DATE: 2003-02-24
; NUMBER OF SEQ ID NOS: 91
; SOFTWARE: PatentIn version 3.2
; SEQ ID NO 65
; LENGTH: 99
; TYPE: PRT
; ORGANISM: Human papillomavirus
PCT-US04-05292-65

Query Match 100.0%; Score 67; DB 1; Length 99;
Best Local Similarity 100.0%; Pred. No. 0.0016;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LMGTLGIVCPIC 12
||||||||||||
Db 83 LMGTLGIVCPIC 94

RESULT 10
PCT-US04-13756-2
; Sequence 2, Application PC/TUS0413756
; GENERAL INFORMATION:
; APPLICANT: JOHNS HOPKINS UNIVERSITY
; TITLE OF INVENTION: ANTI-CANCER DNA VACCINE EMPLOYING PLASMIDS ENCODING SIGNAL
; TITLE OF INVENTION: SEQUENCE, MUTANT ONCOPROTEIN ANTIGEN, AND HEAT SHOCK PROTEIN

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;  FILE REFERENCE: JHU-18/PCT
;  CURRENT APPLICATION NUMBER: PCT/US04/13756
;  CURRENT FILING DATE:  2004-05-05
;  PRIOR APPLICATION NUMBER: US 60/467,602
;  PRIOR FILING DATE: 2003-05-05
;  NUMBER OF SEQ ID NOS: 16
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 2
;   LENGTH: 99
;   TYPE: PRT
;   ORGANISM: Human papillomavirus
PCT-US04-13756-2

  Query Match             100.0%;  Score 67;  DB 1;  Length 99;
  Best Local Similarity   100.0%;  Pred. No. 0.0016;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db         83 LMGTLGIVCPIC 94


RESULT 11
PCT-US04-05292A-5
; Sequence 5, Application PC/TUS0405292A
; GENERAL INFORMATION:
;  APPLICANT: Johns Hopkins University
;  TITLE OF INVENTION: Molecular Vaccines Employing Nucleic Acid Encoding Anti-Apoptotic
;  TITLE OF INVENTION:  Proteins
;  FILE REFERENCE: 26148-jhu-16/pct
;  CURRENT APPLICATION NUMBER: PCT/US04/05292A
;  CURRENT FILING DATE:  2004-02-24
;  PRIOR APPLICATION NUMBER: US60/533,792
;  PRIOR FILING DATE: 2003-12-31
;  PRIOR APPLICATION NUMBER: US60/488,527
;  PRIOR FILING DATE: 2003-07-18
;  PRIOR APPLICATION NUMBER: US60/449,429
;  PRIOR FILING DATE: 2003-02-24
;  NUMBER OF SEQ ID NOS: 91
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 5
;   LENGTH: 99
;   TYPE: PRT
;   ORGANISM: Human papillomavirus
PCT-US04-05292A-5

  Query Match             100.0%;  Score 67;  DB 1;  Length 99;
  Best Local Similarity   100.0%;  Pred. No. 0.0016;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db         83 LMGTLGIVCPIC 94


RESULT 12
PCT-US04-05292A-65
; Sequence 65, Application PC/TUS0405292A
; GENERAL INFORMATION:
;  APPLICANT: Johns Hopkins University
;  TITLE OF INVENTION: Molecular Vaccines Employing Nucleic Acid Encoding Anti-Apoptotic
;  TITLE OF INVENTION:  Proteins
;  FILE REFERENCE: 26148-jhu-16/pct
;  CURRENT APPLICATION NUMBER: PCT/US04/05292A
;  CURRENT FILING DATE:  2004-02-24
;  PRIOR APPLICATION NUMBER: US60/533,792
;  PRIOR FILING DATE: 2003-12-31
;  PRIOR APPLICATION NUMBER: US60/488,527
;  PRIOR FILING DATE: 2003-07-18
;  PRIOR APPLICATION NUMBER: US60/449,429
;  PRIOR FILING DATE: 2003-02-24
;  NUMBER OF SEQ ID NOS: 91
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 65
;   LENGTH: 99
;   TYPE: PRT
;   ORGANISM: Human papillomavirus
PCT-US04-05292A-65

  Query Match             100.0%;  Score 67;  DB 1;  Length 99;
  Best Local Similarity   100.0%;  Pred. No. 0.0016;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db         83 LMGTLGIVCPIC 94


RESULT 13
PCT-US04-13756-7
; Sequence 7, Application PC/TUS0413756
; GENERAL INFORMATION:
;  APPLICANT: JOHNS HOPKINS UNIVERSITY
;  TITLE OF INVENTION: ANTI-CANCER DNA VACCINE EMPLOYING PLASMIDS ENCODING SIGNAL
;  TITLE OF INVENTION:  SEQUENCE, MUTANT ONCOPROTEIN ANTIGEN, AND HEAT SHOCK PROTEIN
;  FILE REFERENCE: JHU-18/PCT
;  CURRENT APPLICATION NUMBER: PCT/US04/13756
;  CURRENT FILING DATE:  2004-05-05
;  PRIOR APPLICATION NUMBER: US 60/467,602
;  PRIOR FILING DATE: 2003-05-05
;  NUMBER OF SEQ ID NOS: 16
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 7
;   LENGTH: 127
;   TYPE: PRT
;   ORGANISM: Human papillomavirus
PCT-US04-13756-7

  Query Match             100.0%;  Score 67;  DB 1;  Length 127;
  Best Local Similarity   100.0%;  Pred. No. 0.002;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
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Db        113 LMGTLGIVCPIC 124


RESULT 14
PCT-US04-05292-53
; Sequence 53, Application PC/TUS0405292
; GENERAL INFORMATION:
;  APPLICANT: Johns Hopkins University
;  TITLE OF INVENTION: Molecular Vaccines Employing Nucleic Acid Encoding Anti-Apoptotic
;  TITLE OF INVENTION:  Proteins
;  FILE REFERENCE: 26148.jhu16/pct
;  CURRENT APPLICATION NUMBER: PCT/US04/05292
;  CURRENT FILING DATE:  2002-02-24
;  PRIOR APPLICATION NUMBER: US60/533,792
;  PRIOR FILING DATE: 2003-12-31
;  PRIOR APPLICATION NUMBER: US60/488,527
;  PRIOR FILING DATE: 2003-07-18
;  PRIOR APPLICATION NUMBER: US60/449,429
;  PRIOR FILING DATE: 2003-02-24
;  NUMBER OF SEQ ID NOS: 91
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 53
;   LENGTH: 166
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic peptide
PCT-US04-05292-53

  Query Match             100.0%;  Score 67;  DB 1;  Length 166;
  Best Local Similarity   100.0%;  Pred. No. 0.0027;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
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Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db        113 LMGTLGIVCPIC 124


RESULT 15
PCT-US04-05292A-53
; Sequence 53, Application PC/TUS0405292A
; GENERAL INFORMATION:
;  APPLICANT: Johns Hopkins University
;  TITLE OF INVENTION: Molecular Vaccines Employing Nucleic Acid Encoding Anti-Apoptotic
;  TITLE OF INVENTION:  Proteins
;  FILE REFERENCE: 26148-jhu-16/pct
;  CURRENT APPLICATION NUMBER: PCT/US04/05292A
;  CURRENT FILING DATE:  2004-02-24
;  PRIOR APPLICATION NUMBER: US60/533,792
;  PRIOR FILING DATE: 2003-12-31
;  PRIOR APPLICATION NUMBER: US60/488,527
;  PRIOR FILING DATE: 2003-07-18
;  PRIOR APPLICATION NUMBER: US60/449,429
;  PRIOR FILING DATE: 2003-02-24
;  NUMBER OF SEQ ID NOS: 91
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 53
;   LENGTH: 166
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic peptide
PCT-US04-05292A-53

  Query Match             100.0%;  Score 67;  DB 1;  Length 166;
  Best Local Similarity   100.0%;  Pred. No. 0.0027;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db        113 LMGTLGIVCPIC 124


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OM protein - protein search, using sw model

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(without alignments)
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Title: US-10-603-062-18
Perfect score: 122
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Maximum Match 100%
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4: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:*
5: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*
6: /cgn2_6/ptodata/1/iaa/backfiles1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	122	100.0	25	2	US-08-480-190-155	Sequence 155, App
2	122	100.0	25	2	US-08-488-379-155	Sequence 155, App
3	122	100.0	25	3	US-08-948-378A-18	Sequence 18, Appl
4	122	100.0	25	3	US-09-169-425C-18	Sequence 18, Appl
5	122	100.0	25	3	US-09-302-329A-4	Sequence 4, Appli
6	122	100.0	25	4	US-09-440-344-1	Sequence 1, Appli
7	122	100.0	25	4	US-08-475-399A-155	Sequence 155, App
8	122	100.0	25	4	US-09-692-064-3	Sequence 3, Appli
9	122	100.0	25	4	US-09-552-802B-43	Sequence 43, Appl
10	122	100.0	25	4	US-09-759-960-18	Sequence 18, Appl
11	122	100.0	25	4	US-09-667-319-4	Sequence 4, Appli
12	122	100.0	25	4	US-08-077-255A-155	Sequence 155, App
13	122	100.0	25	4	US-09-451-291-6	Sequence 6, Appli
14	122	100.0	25	5	PCT-US93-07545-155	Sequence 155, App
15	122	100.0	38	3	US-08-948-378A-6	Sequence 6, Appli
16	122	100.0	38	3	US-09-169-425C-6	Sequence 6, Appli
17	122	100.0	38	4	US-09-759-960-6	Sequence 6, Appli
18	122	100.0	40	4	US-08-475-399A-275	Sequence 275, App
19	122	100.0	49	4	US-08-475-399A-276	Sequence 276, App
20	122	100.0	129	4	US-09-513-999C-7835	Sequence 7835, Ap
21	122	100.0	145	4	US-09-513-999C-4264	Sequence 4264, Ap
22	122	100.0	248	1	US-08-644-664B-27	Sequence 27, Appl
23	122	100.0	248	2	US-08-761-277A-27	Sequence 27, Appl
24	122	100.0	253	2	US-08-484-905-109	Sequence 109, App
25	122	100.0	253	3	US-08-481-985B-109	Sequence 109, App
26	122	100.0	253	3	US-08-370-476-109	Sequence 109, App
27	122	100.0	254	4	US-09-949-016-6946	Sequence 6946, Ap
28	122	100.0	263	4	US-09-949-016-11024	Sequence 11024, A
29	122	100.0	364	4	US-09-756-983-22	Sequence 22, Appl
30	78	63.9	256	2	US-08-484-905-114	Sequence 114, App
31	78	63.9	256	3	US-08-481-985B-114	Sequence 114, App
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33	48	39.3	457	4	US-09-489-039A-10750	Sequence 10750, A
34	46	37.7	283	4	US-09-248-796A-20103	Sequence 20103, A
35	45	36.9	250	2	US-08-484-905-112	Sequence 112, App
36	45	36.9	250	3	US-08-481-985B-112	Sequence 112, App
37	45	36.9	250	3	US-08-370-476-112	Sequence 112, App
38	45	36.9	256	4	US-09-949-016-11565	Sequence 11565, A
39	45	36.9	270	4	US-09-252-991A-18185	Sequence 18185, A
40	45	36.9	308	4	US-09-489-039A-9795	Sequence 9795, Ap
41	45	36.9	490	3	US-09-134-001C-5116	Sequence 5116, Ap
42	44.5	36.5	143	1	US-08-686-878A-24	Sequence 24, Appl
43	44.5	36.5	143	2	US-08-924-838-2	Sequence 2, Appli
44	44.5	36.5	143	3	US-09-175-928-24	Sequence 24, Appl
45	44.5	36.5	371	4	US-09-636-215-708	Sequence 708, App

ALIGNMENTS

RESULT 1
US-08-480-190-155
; Sequence 155, Application US/08480190
; Patent No. 5827516
; GENERAL INFORMATION:
; APPLICANT: Robert G. Urban
; APPLICANT: Roman M. Chicz
; APPLICANT: Dario A. A. Vignali
; APPLICANT: Mary L. Hedley
; APPLICANT: Lawrence J. Stern
; APPLICANT: Jack L. Strominger
; TITLE OF INVENTION: IMMUNOMODULATORY PEPTIDES
; NUMBER OF SEQUENCES: 274
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Fish & Richardson
; STREET: 225 Franklin Street
; CITY: Boston
; STATE: Massachusetts
; COUNTRY: U.S.A.
; ZIP: 02110-2804
; COMPUTER READABLE FORM:
; MEDIUM TYPE: 3.5" Diskette, 1.44 Mb
; COMPUTER: IBM PS/2 Model 50Z or 55SX
; OPERATING SYSTEM: MS-DOS (Version 5.0)
; SOFTWARE: WordPerfect (Version 5.1)
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/480,190
; FILING DATE:
; CLASSIFICATION: 424
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/077,255
; FILING DATE: June 15, 1993
; APPLICATION NUMBER: 07/925,460
; FILING DATE: August 11, 1992
; ATTORNEY/AGENT INFORMATION:
; NAME: Clark, Paul T.
; REGISTRATION NUMBER: 30,162
; REFERENCE/DOCKET NUMBER: 00246/168001
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (617) 542-5070
; TELEFAX: (617) 542-8906
; TELEX: 200154
; INFORMATION FOR SEQ ID NO: 155:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 25
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: linear
US-08-480-190-155

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Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 2
US-08-488-379-155
; Sequence 155, Application US/08488379
; Patent No. 5880103
;  GENERAL INFORMATION:
;    APPLICANT:  Robert G. Urban
;    APPLICANT:  Roman M. Chicz
;    APPLICANT:  Dario A. A. Vignali
;    APPLICANT:  Mary L. Hedley
;    APPLICANT:  Lawrence J. Stern
;    APPLICANT:  Jack L. Strominger
;    TITLE OF INVENTION:  IMMUNOMODULATORY PEPTIDES
;    NUMBER OF SEQUENCES:  274
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  Massachusetts
;      COUNTRY:  U.S.A.
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  3.5" Diskette, 1.44 Mb
;      COMPUTER:  IBM PS/2 Model 50Z or 55SX
;      OPERATING SYSTEM:  MS-DOS (Version 5.0)
;      SOFTWARE:  WordPerfect (Version 5.1)
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/488,379
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/077,255
;      FILING DATE:  June 15, 1993
;      APPLICATION NUMBER:  07/925,460
;      FILING DATE:  August 11, 1992
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Clark, Paul T.
;      REGISTRATION NUMBER:  30,162
;      REFERENCE/DOCKET NUMBER:  00246/168001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617) 542-5070
;      TELEFAX:  (617) 542-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  155:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  25
;      TYPE:  amino acid
;      STRANDEDNESS:
;      TOPOLOGY:  linear
US-08-488-379-155

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Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 3
US-08-948-378A-18
; Sequence 18, Application US/08948378A
; Patent No. 6013258
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM
;    TITLE OF INVENTION:  THE HPV E7 PROTEIN
;    NUMBER OF SEQUENCES:  19
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/948,378A
;      FILING DATE:  09-OCT-1997
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  18:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  25 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-08-948-378A-18

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  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 4
US-09-169-425C-18
; Sequence 18, Application US/09169425C
; Patent No. 6183746
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM THE HPV E7
;    TITLE OF INVENTION:  PROTEIN
;    NUMBER OF SEQUENCES:  33
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
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;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/169,425C
;      FILING DATE:  09-OCT-1998
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/061,657
;      FILING DATE:  09-OCT-1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004002
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  18:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  25 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-09-169-425C-18

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  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 5
US-09-302-329A-4
; Sequence 4, Application US/09302329A
; Patent No. 6387701
; GENERAL INFORMATION:
;  APPLICANT:  NAIR, SMITA K.
;  APPLICANT:  BOCZKOWSKI, DAVID J.
;  APPLICANT:  GILBOA, ELI
;  TITLE OF INVENTION:  RNA-LOADED ANTIGEN PRESENTING CELLS
;  FILE REFERENCE:  1579-297
;  CURRENT APPLICATION NUMBER: US/09/302,329A
;  CURRENT FILING DATE:  1999-04-30
;  PRIOR APPLICATION NUMBER:  09/073,819
;  PRIOR FILING DATE:  1998-05-06
;  PRIOR APPLICATION NUMBER:  08/640,444
;  PRIOR FILING DATE:  1996-04-30
;  PRIOR APPLICATION NUMBER:  09/171,916
;  PRIOR FILING DATE:  1999-02-16
;  NUMBER OF SEQ ID NOS:  7
;  SOFTWARE:  PatentIn Ver. 2.1
; SEQ ID NO 4
;   LENGTH: 25
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Signal peptide of MHC Class I
US-09-302-329A-4

  Query Match             100.0%;  Score 122;  DB 3;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 6.5e-14;
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Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 6
US-09-440-344-1
; Sequence 1, Application US/09440344
; Patent No. 6492498
; GENERAL INFORMATION:
;  APPLICANT:  Vallera, Daniel A.
;  APPLICANT:  Blazar, Bruce R.
;  TITLE OF INVENTION:  MULTIMERIC IMMUNOTOXINS
;  FILE REFERENCE:  09531/013001
;  CURRENT APPLICATION NUMBER: US/09/440,344
;  CURRENT FILING DATE:  1999-11-15
;  NUMBER OF SEQ ID NOS:  6
;  SOFTWARE:  FastSEQ for Windows Version 4.0
; SEQ ID NO 1
;   LENGTH: 25
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-440-344-1

  Query Match             100.0%;  Score 122;  DB 4;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 6.5e-14;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
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Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 7
US-08-475-399A-155
; Sequence 155, Application US/08475399A
; Patent No. 6509033
; GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Vignali, Dario A.A.
;    APPLICANT:  Hedley, Mary L.
;    APPLICANT:  Stern, Lawrence J.
;    APPLICANT:  Strominger, Jack L.
;    TITLE OF INVENTION:  IMMUNOMODULATORY PEPTIDES
;    NUMBER OF SEQUENCES:  276
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/475,399A
;      FILING DATE:  07-JUN-1995
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/077,255
;      FILING DATE:  15-JUN-1993
;      APPLICATION NUMBER:  07/925,460
;      FILING DATE:  11-AUG-1992
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  00246/168003
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617/542-507
;      TELEFAX:  617/542-890
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  155:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  25 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-475-399A-155

  Query Match             100.0%;  Score 122;  DB 4;  Length 25;
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  Best Local Similarity   100.0%;  Pred. No. 6.5e-14;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 8
US-09-692-064-3
; Sequence 3, Application US/09692064
; Patent No. 6537552
; GENERAL INFORMATION:
;  APPLICANT: Minion, F. Chris
;  APPLICANT:  Menon, Sreekumar A.
;  APPLICANT:  Mahairas, Gregory G.
;  TITLE OF INVENTION: VACCINE ADJUVANT
;  FILE REFERENCE: 08411-016001
;  CURRENT APPLICATION NUMBER: US/09/692,064
;  CURRENT FILING DATE:  2000-10-19
;  PRIOR APPLICATION NUMBER: US 60/160,429
;  PRIOR FILING DATE: 1999-10-19
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 3
;   LENGTH: 25
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-692-064-3

  Query Match             100.0%;  Score 122;  DB 4;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 6.5e-14;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
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Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 9
US-09-552-802B-43
; Sequence 43, Application US/09552802B
; Patent No. 6562943
; GENERAL INFORMATION:
;  APPLICANT: Peakman, Mark
;  APPLICANT:  Chicz, Roman M.
;  TITLE OF INVENTION: PEPTIDE EPITOPES RECOGNIZED BY DISEASE PROMOTING
;  TITLE OF INVENTION:  CD4+ T LYMPHOCYTES
;  FILE REFERENCE: 08191-009002
;  CURRENT APPLICATION NUMBER: US/09/552,802B
;  CURRENT FILING DATE:  2000-04-20
;  PRIOR APPLICATION NUMBER: US 09/295,868
;  PRIOR FILING DATE: 1999-04-21
;  PRIOR APPLICATION NUMBER: US 60/130,355
;  PRIOR FILING DATE: 1999-04-21
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 43
;   LENGTH: 25
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-552-802B-43

  Query Match             100.0%;  Score 122;  DB 4;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 6.5e-14;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
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Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 10
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US-09-759-960-18
; Sequence 18, Application US/09759960
; Patent No. 6582704
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM THE HPV E7
;    TITLE OF INVENTION:  PROTEIN
;    NUMBER OF SEQUENCES:  33
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/759,960
;      FILING DATE:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  09/169,425
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004002
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  18:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  25 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-09-759-960-18

  Query Match             100.0%;  Score 122;  DB 4;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 6.5e-14;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
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Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 11
US-09-667-319-4
; Sequence 4, Application US/09667319
; Patent No. 6670186
; GENERAL INFORMATION:
;  APPLICANT: NAIR, SMITA K.
;  APPLICANT:  BOCZKOWSKI, DAVID J.
;  APPLICANT:  GILBOA, ELI
;  TITLE OF INVENTION: RNA-LOADED ANTIGEN PRESENTING CELLS
;  FILE REFERENCE: 1579-485
;  CURRENT APPLICATION NUMBER: US/09/667,319
;  CURRENT FILING DATE:  2000-09-22
;  PRIOR APPLICATION NUMBER: 09/302,329
;  PRIOR FILING DATE: 1999-04-30
;  PRIOR APPLICATION NUMBER: 09/073,819
;  PRIOR FILING DATE: 1998-05-06
;  PRIOR APPLICATION NUMBER: 08/640,444
;  PRIOR FILING DATE: 1996-04-30
;  PRIOR APPLICATION NUMBER: 09/171,916
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; PRIOR FILING DATE: 1999-02-16
; NUMBER OF SEQ ID NOS: 7
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 4
;   LENGTH: 25
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Signal peptide of MHC Class I
US-09-667-319-4

  Query Match 100.0%; Score 122; DB 4; Length 25;
  Best Local Similarity 100.0%; Pred. No. 6.5e-14;
  Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MAISGVPVLGFFIIAVLMSAQESWA 25
      |||||||||||||||||||||||||
Db 1 MAISGVPVLGFFIIAVLMSAQESWA 25

RESULT 12
US-08-077-255A-155
; Sequence 155, Application US/08077255A
; Patent No. 6696061
; GENERAL INFORMATION:
;   APPLICANT: Robert G. Urban
;   APPLICANT: Roman M. Chicz
;   APPLICANT: Dario A. A. Vignali
;   APPLICANT: Mary L. Hedley
;   APPLICANT: Lawrence J. Stern
;   APPLICANT: Jack L. Strominger
;   TITLE OF INVENTION: IMMUNOMODULATORY PEPTIDES
;   NUMBER OF SEQUENCES: 274
;   CORRESPONDENCE ADDRESS:
;   ADDRESSEE: Fish & Richardson
;   STREET: 225 Franklin Street
;   CITY: Boston
;   STATE: Massachusetts
;   COUNTRY: U.S.A.
;   ZIP: 02110-2804
;   COMPUTER READABLE FORM:
;   MEDIUM TYPE: 3.5" Diskette, 1.44 Mb
;   COMPUTER: IBM PS/2 Model 50Z or 55SX
;   OPERATING SYSTEM: MS-DOS (Version 5.0)
;   SOFTWARE: WordPerfect (Version 5.1)
;   CURRENT APPLICATION DATA:
;   APPLICATION NUMBER: US/08/077,255A
;   FILING DATE: June 15, 1993
;   CLASSIFICATION: 424
;   PRIOR APPLICATION DATA:
;   APPLICATION NUMBER: 07/925,460
;   FILING DATE: August 11, 1992
;   ATTORNEY/AGENT INFORMATION:
;   NAME: Clark, Paul T.
;   REGISTRATION NUMBER: 30,162
;   REFERENCE/DOCKET NUMBER: 00246/168001
;   TELECOMMUNICATION INFORMATION:
;   TELEPHONE: (617) 542-5070
;   TELEFAX: (617) 542-8906
;   TELEX: 200154
; INFORMATION FOR SEQ ID NO: 155:
;   SEQUENCE CHARACTERISTICS:
;   LENGTH: 25
;   TYPE: amino acid
;   STRANDEDNESS:
;   TOPOLOGY: linear
US-08-077-255A-155

  Query Match 100.0%; Score 122; DB 4; Length 25;
  Best Local Similarity 100.0%; Pred. No. 6.5e-14;
  Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MAISGVPVLGFFIIAVLMSAQESWA 25
      |||||||||||||||||||||||||
Db 1 MAISGVPVLGFFIIAVLMSAQESWA 25

RESULT 13
US-09-451-291-6
; Sequence 6, Application US/09451291
; Patent No. 6803192
; GENERAL INFORMATION:
; APPLICANT: Chen, Lieping
; TITLE OF INVENTION: B7-H1, A NOVEL IMMUNOREGULATORY MOLECULE
; FILE REFERENCE: 07039/187001
; CURRENT APPLICATION NUMBER: US/09/451,291
; CURRENT FILING DATE: 1999-11-30
; NUMBER OF SEQ ID NOS: 12
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 6
;   LENGTH: 25
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-451-291-6

  Query Match 100.0%; Score 122; DB 4; Length 25;
  Best Local Similarity 100.0%; Pred. No. 6.5e-14;
  Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MAISGVPVLGFFIIAVLMSAQESWA 25
      |||||||||||||||||||||||||
Db 1 MAISGVPVLGFFIIAVLMSAQESWA 25

RESULT 14
PCT-US93-07545-155
; Sequence 155, Application PC/TUS9307545
; GENERAL INFORMATION:
;   APPLICANT: Robert G. Urban
;   APPLICANT: Roman M. Chicz
;   APPLICANT: Dario A. A. Vignali
;   APPLICANT: Mary L. Hedley
;   APPLICANT: Lawrence J. Stern
;   APPLICANT: Jack L. Strominger
;   TITLE OF INVENTION: IMMUNOMODULATORY PEPTIDES
;   NUMBER OF SEQUENCES: 273
;   CORRESPONDENCE ADDRESS:
;   ADDRESSEE: Fish & Richardson
;   STREET: 225 Franklin Street
;   CITY: Boston
;   STATE: Massachusetts
;   COUNTRY: U.S.A.
;   ZIP: 02110-2804
;   COMPUTER READABLE FORM:
;   MEDIUM TYPE: 3.5" Diskette, 1.44 Mb
;   COMPUTER: IBM PS/2 Model 50Z or 55SX
;   OPERATING SYSTEM: MS-DOS (Version 5.0)
;   SOFTWARE: WordPerfect (Version 5.1)
;   CURRENT APPLICATION DATA:
;   APPLICATION NUMBER: PCT/US93/07545
;   FILING DATE: 19930811
;   CLASSIFICATION:
;   PRIOR APPLICATION DATA:
;   APPLICATION NUMBER: 07/925,460
;   FILING DATE: August 11, 1992
;   ATTORNEY/AGENT INFORMATION:
;   NAME: Clark, Paul T.
;   REGISTRATION NUMBER: 30,162
;   REFERENCE/DOCKET NUMBER: 00246/168001
;   TELECOMMUNICATION INFORMATION:
;   TELEPHONE: (617) 542-5070
;   TELEFAX: (617) 542-8906
;   TELEX: 200154
; INFORMATION FOR SEQ ID NO: 155:
;   SEQUENCE CHARACTERISTICS:
;   LENGTH: 25

```
;      TYPE:  amino acid
;      STRANDEDNESS:
;      TOPOLOGY:  linear
PCT-US93-07545-155

  Query Match             100.0%;  Score 122;  DB 5;  Length 25;
  Best Local Similarity   100.0%;  Pred. No. 6.5e-14;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              |||||||||||||||||||||||||
Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


RESULT 15
US-08-948-378A-6
; Sequence 6, Application US/08948378A
; Patent No. 6013258
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM
;    TITLE OF INVENTION:  THE HPV E7 PROTEIN
;    NUMBER OF SEQUENCES:  19
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/948,378A
;      FILING DATE:  09-OCT-1997
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  6:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  38 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  protein
;    FRAGMENT TYPE:  internal
US-08-948-378A-6

  Query Match             100.0%;  Score 122;  DB 3;  Length 38;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-13;
  Matches   25;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              |||||||||||||||||||||||||
Db          1 MAISGVPVLGFFIIAVLMSAQESWA 25


Search completed: August 19, 2005, 23:35:16
Job time : 26 secs
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GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: August 19, 2005, 23:22:13 ; Search time 32.4324 Seconds
(without alignments)
74.167 Million cell updates/sec

Title: US-10-603-062-18
Perfect score: 122
Sequence: 1 MAISGVPVLGFFIIAVLMSAQESWA 25

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues

Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR_79:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	122	100.0	254	1	HLHUDA	MHC class II histo
2	101.5	83.2	255	2	A45881	MHC class II histo
3	78	63.9	255	1	HLMSEA	H-2 class II histo
4	78	63.9	255	1	HLMSED	H-2 class II histo
5	77.5	63.5	253	2	S15684	MHC class II histo
6	72.5	59.4	253	2	JC2388	class II histocomp
7	68	55.7	255	2	S06316	class II histocomp
8	65	53.3	252	2	A46505	SLA-DRAd (MHC Clas
9	60	49.2	23	2	I56028	MHC class II prote
10	49	40.2	477	2	E86252	hypothetical prote
11	49	40.2	556	2	C75596	ExoP-related prote
12	48	39.3	75	2	S75553	hypothetical prote
13	48	39.3	321	2	B72367	oligopeptide ABC t
14	48	39.3	487	2	AH0956	probable membrane
15	48	39.3	513	2	B83758	hypothetical prote
16	47	38.5	445	2	C91210	probable membrane
17	47	38.5	445	2	F86056	probable membrane
18	47	38.5	445	2	C65174	hypothetical 46.9
19	47	38.5	605	2	T11111	NADH2 dehydrogenas
20	46	37.7	178	2	E84650	hypothetical prote
21	46	37.7	180	2	T08586	probable H+-export
22	46	37.7	458	2	C82232	proton/glutamate s
23	46	37.7	458	2	T01969	potassium transpor
24	46	37.7	489	2	T04046	potassium transpor
25	46	37.7	606	2	T10982	NADH2 dehydrogenas
26	46	37.7	652	2	D85044	hypothetical prote
27	46	37.7	1808	2	AB1847	serine/threonine k
28	45.5	37.3	645	2	A75390	NADH2 dehydrogenas
29	45	36.9	67	2	I54475	HLA-DNA-related sm
30	45	36.9	250	1	HLHUDZ	MHC class II histo
31	45	36.9	260	2	E83174	hypothetical prote
32	45	36.9	341	2	F82301	peptide ABC transp
33	45	36.9	442	2	AG0498	xanthine/uracil pe
34	45	36.9	489	2	H81912	probable integral
35	44.5	36.5	313	2	AE2057	permease protein o
36	44.5	36.5	833	2	S48558	probable membrane
37	44	36.1	218	2	A96009	probable amino aci
38	44	36.1	357	2	C86050	hypothetical prote
39	44	36.1	357	2	A98204	hypothetical prote
40	44	36.1	379	2	S67856	GumG protein - Xan
41	44	36.1	398	2	B96939	probable permease
42	44	36.1	445	2	AF1022	probable amino aci
43	44	36.1	457	2	A95940	probable integral
44	44	36.1	470	2	A65168	hypothetical 49.9
45	44	36.1	519	2	E90548	conserved hypothet

ALIGNMENTS

RESULT 1
HLHUDA
MHC class II histocompatibility antigen HLA-DR alpha chain precursor - human
C;Species: Homo sapiens (man)
C;Date: 17-Dec-1982 #sequence_revision 27-Nov-1985 #text_change 09-Jul-2004
C;Accession: A93952; A20898; A21113; I58045; A91707; A90825; B90825; A93927; I52975; I80
R;Das, H.K.; Lawrance, S.K.; Weissman, S.M.
Proc. Natl. Acad. Sci. U.S.A. 80, 3543-3547, 1983
A;Title: Structure and nucleotide sequence of the heavy chain gene of HLA-DR.
A;Reference number: A93952; MUID:83221632; PMID:6304715
A;Accession: A93952
A;Molecule type: DNA
A;Residues: 1-254 <DAS>
A;Cross-references: UNIPROT:P01903; GB:J00203; GB:J00204; NID:g188427; PIDN:AAA36302.1;
A;Note: this allele is designated DRA*0101
R;Schamboeck, A.; Korman, A.J.; Kamb, A.; Strominger, J.L.
Nucleic Acids Res. 11, 8663-8675, 1983
A;Title: Organization of the transcriptional unit of a human class II histocompatibility
A;Reference number: A20898; MUID:84169507; PMID:6324094
A;Accession: A20898
A;Molecule type: DNA
A;Residues: 1-241,'L',243-254 <SCH>
A;Experimental source: (unknown allelotype)
R;Das, H.K.; Biro, P.A.; Cohen, S.N.; Erlich, H.A.; von Gabain, A.; Lawrance, S.K.; Lema
Proc. Natl. Acad. Sci. U.S.A. 80, 1531-1535, 1983
A;Title: Use of synthetic oligonucleotide probes complementary to genes for human HLA-DR
A;Reference number: A21113; MUID:83169718; PMID:6403940
A;Accession: A21113
A;Molecule type: mRNA
A;Residues: 1-39 <DA2>
A;Cross-references: GB:J00197
R;Lee, J.S.; Trowsdale, J.; Travers, P.J.; Carey, J.; Grosveld, F.; Jenkins, J.; Bodmer,
Nature 299, 750-752, 1982
A;Title: sequence of an hla-dr alpha-chain cdna clone and intron-exon organization of th
A;Reference number: I58045; MUID:83013020; PMID:6811954
A;Accession: I58045
A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-254 <RES>
A;Cross-references: GB:J00194; NID:g188231; PIDN:AAA36275.1; PID:g307264
R;Das, H.K.; Lawrance, S.K.; Weissman, S.M.
Proc. Natl. Acad. Sci. U.S.A. 80, 7024, 1983
A;Reference number: A93978
A;Contents: annotation; erratum
R;Yang, C.Y.; Kratzin, H.; Gotz, H.; Thinnes, F.P.; Kruse, T.; Egert, G.; Pauly, E.; Kol
Hoppe-Seyler's Z. Physiol. Chem. 363, 671-676, 1982
A;Title: Primaerstruktur menshlicher Histokompatibilitaetsantigene der Klasse II. 2. Mit
A;Reference number: A91707; MUID:82263347; PMID:6955253
A;Accession: A91707
A;Molecule type: protein
A;Residues: 26-148,'D',150-204 <YAN>
R;Larhammar, D.; Gustafsson, K.; Claesson, L.; Bill, P.; Wiman, K.; Schenning, L.; Sunde

Cell 30, 153-161, 1982
A;Title: Alpha chain of HLA-DR transplantation antigens is a member of the same protein
A;Reference number: A90825; MUID:83025073; PMID:6812963
A;Accession: A90825
A;Molecule type: protein
A;Residues: 26-60 <LAR>
A;Note: 28-Ala, 29-Asp, 33-Thr, 33-Pro, 34-Tyr, 35-Pro, 48-Gln, and 54-Thr were also fou
A;Accession: B90825
A;Molecule type: mRNA
A;Residues: 32-202;204-254 <LA2>
A;Cross-references: GB:J00196
A;Note: this allele is designated DRA*0101
R;Korman, A.J.; Auffray, C.; Schamboeck, A.; Strominger, J.L.
Proc. Natl. Acad. Sci. U.S.A. 79, 6013-6017, 1982
A;Title: The amino acid sequence and gene organization of the heavy chain of the HLA-DR
A;Reference number: A93927; MUID:83299916; PMID:6821129
A;Accession: A93927
A;Molecule type: DNA
A;Residues: 29-254 <KOR>
A;Cross-references: GB:J00201
A;Note: 242-Leu was also found
A;Note: this allele is designated DRA*0102
R;Kajimura, Y.; Toyoda, H.; Sato, M.; Miyakoshi, S.; Kaplan, S.A.; Ike, Y.; Goyert, S.M.
DNA 2, 175-182, 1983
A;Title: Cloning the heavy chain of human HLA-DR antigen using synthetic oligodeoxyribon
A;Reference number: I52975; MUID:84057142; PMID:6416803
A;Accession: I52975
A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-254 <KAY>
A;Cross-references: GB:K01171; NID:g188264; PIDN:AAA59785.1; PID:g307267
R;Gustafsson, K.; Wiman, K.; Larhammar, D.G.; Rask, L.; Peterson, P.A.
Scand. J. Immunol. 19, 91-97, 1984
A;Title: Signal sequences distinguish class II histocompatibility antigen beta chains of
A;Reference number: I59467; MUID:84146572; PMID:6422542
A;Accession: I80355
A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-50 <RE2>
A;Cross-references: GB:M35979; NID:g188262; PIDN:AAA36283.1; PID:g188263
R;Lee, J.S.; Trowsdale, J.; Bodmer, W.F.
Proc. Natl. Acad. Sci. U.S.A. 79, 545-549, 1982
A;Title: cdna clones coding for the heavy chain of human hla-dr antigen.
A;Reference number: I58984; MUID:82197531; PMID:6952207
A;Accession: I58984
A;Status: translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 26-42 <RE3>
A;Cross-references: GB:J00193; NID:g188213; PIDN:AAA36272.1; PID:g188214
R;Koppelman, B.; Cresswell, P.
J. Immunol. 145, 2730-2736, 1990
A;Title: Rapid nonlysosomal degradation of assembled HLA class II glycoproteins incorpor
A;Reference number: I56085; MUID:91010755; PMID:2212658
A;Accession: I56085
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-241,'L',243-254 <RE4>
A;Cross-references: GB:M60334; NID:g188255; PIDN:AAA59783.1; PID:g188256
R;Korman, A.J.; Knudsen, P.J.; Kaufman, J.F.; Strominger, J.L.
Proc. Natl. Acad. Sci. U.S.A. 79, 1844-1848, 1982
A;Title: cDNA clones for the heavy chain of HLA-DR antigens obtained after immunopurific
A;Reference number: I37530; MUID:82197594; PMID:6952234
A;Accession: I37530
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 224-241,'L',243-254 <RE6>
A;Cross-references: EMBL:V00528; NID:g32192; PIDN:CAA23787.1; PID:g825675
C;Genetics:
A;Gene: GDB:HLA-DRA
A;Cross-references: GDB:120641; OMIM:142860
A;Map position: 6p21.3-6p21.3
A;Introns: 82/1; 176/1
C;Superfamily: class II histocompatibility antigen; immunoglobulin homology
C;Keywords: glycoprotein; heterodimer; transmembrane protein
F;1-25/Domain: signal sequence #status predicted <SIG>
F;26-254/Product: class II histocompatibility antigen HLA-DR alpha chain #status predicte
F;26-216/Domain: extracellular #status predicted <EXT>
F;26-109/Domain: alpha-1 <EX1>
F;125-190/Domain: immunoglobulin homology <IMM>
F;217-239/Domain: transmembrane #status predicted <TSM>
F;240-254/Domain: intracellular #status predicted <INT>
F;103,143/Binding site: carbohydrate (Asn) (covalent) #status experimental
F;132-188/Disulfide bonds: #status experimental

Query Match 100.0%; Score 122; DB 1; Length 254;
Best Local Similarity 100.0%; Pred. No. 3.1e-11;
Matches 25; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MAISGVPVLGFFIIAVLMSAQESWA 25
||||||||||||||||||||||||||
Db 1 MAISGVPVLGFFIIAVLMSAQESWA 25

RESULT 2
A45881
MHC class II histocompatibility antigen RLA-DR alpha chain precursor - rabbit
C;Species: Oryctolagus cuniculus (domestic rabbit)
C;Date: 03-Jun-1993 #sequence_revision 03-Jun-1993 #text_change 09-Jul-2004
C;Accession: A45881
R;Laverriere, A.; Kulaga, H.; Kindt, T.J.; LeGuern, C.; Marche, P.N.
Immunogenetics 30, 137-140, 1989
A;Title: A rabbit class II MHC gene with strong similarities to HLA-DRA.
A;Reference number: A45881; MUID:89339606; PMID:2759665
A;Accession: A45881
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-255 <LAV>
A;Cross-references: UNIPROT:Q30847; GB:M28161; NID:g341842; PIDN:AAA31394.1; PID:g529576
C;Superfamily: class II histocompatibility antigen; immunoglobulin homology
F;126-191/Domain: immunoglobulin homology <IMM>

Query Match 83.2%; Score 101.5; DB 2; Length 255;
Best Local Similarity 84.6%; Pred. No. 4.4e-08;
Matches 22; Conservative 2; Mismatches 1; Indels 1; Gaps 1;

Qy 1 MAIS-GVPVLGFFIIAVLMSAQESWA 25
|||| |||||||||:||| |:|||
Db 1 MAISGGVPVLGFFIIAILMSPQKSWA 26

RESULT 3
HLMSEA
H-2 class II histocompatibility antigen E-k alpha chain precursor - mouse
C;Species: Mus musculus (house mouse)
C;Date: 04-Dec-1986 #sequence_revision 04-Dec-1986 #text_change 09-Jul-2004
C;Accession: A21938; A02208
R;Mathis, D.J.; Benoist, C.O.; Williams II, V.E.; Kanter, M.R.; McDevitt, H.O.
Cell 32, 745-754, 1983
A;Title: The murine E-alpha immune response gene.
A;Reference number: A21938; MUID:83155651; PMID:6403249
A;Accession: A21938
A;Molecule type: DNA
A;Residues: 1-255 <MATH>
A;Cross-references: UNIPROT:P04224; GB:J00398; NID:g199348; PID:g387448
R;Benoist, C.O.; Mathis, D.J.; Kanter, M.R.; Williams II, V.E.; McDevitt, H.O.
Proc. Natl. Acad. Sci. U.S.A. 80, 534-538, 1983
A;Title: The murine Ia alpha chains, E-alpha and A-alpha, show a surprising degree of sec
A;Reference number: A93967; MUID:83169693; PMID:6300851
A;Accession: A02208
A;Status: nucleic acid sequence not shown
A;Molecule type: mRNA
A;Residues: 1-255 <BEN>
C;Superfamily: class II histocompatibility antigen; immunoglobulin homology
C;Keywords: heterodimer; transmembrane protein
F;1-25/Domain: signal sequence #status predicted <SIG>
F;26-255/Product: H-2 class II histocompatibility antigen E-k alpha chain #status predict

F;26-109/Domain: alpha-1 <XA1>
F;110-203/Domain: alpha-2 <XA2>
F;125-190/Domain: immunoglobulin homology <IMM>
F;204-216/Domain: connecting peptide #status predicted <CCP>
F;217-244/Domain: transmembrane #status predicted <TMM>
F;245-255/Domain: intracellular #status predicted <INT>
F;132-188/Disulfide bonds: #status predicted

Query Match 63.9%; Score 78; DB 1; Length 255;
Best Local Similarity 68.0%; Pred. No. 0.00018;
Matches 17; Conservative 2; Mismatches 6; Indels 0; Gaps 0;

Qy 1 MAISGVPVLGFFIIAVLMSAQESWA 25
|| | || || ||||||:|:|||
Db 1 MATIGALVLRFFFIAVLMSSQKSWA 25

RESULT 4
HLMSED
H-2 class II histocompatibility antigen E-d alpha chain precursor - mouse
N;Alternate names: immune response protein I-E-alpha(d)
C;Species: Mus musculus (house mouse)
C;Date: 18-Apr-1984 #sequence_revision 18-Apr-1984 #text_change 09-Jul-2004
C;Accession: B91743; A94266; A93967; A21217; S20788; A02207
R;Larhammar, D.; Andersson, G.; Andersson, M.; Bill, P.; Bohme, J.; Claesson, L.; Denarc
rvenius, B.; Widmark, E.; Rask, L.; Peterson, P.A.
Hum. Immunol. 8, 95-103, 1983
A;Title: Molecular analysis of human class II transplantation antigens and their genes.
A;Reference number: A91743; MUID:84031733; PMID:6415003
A;Accession: B91743
A;Status: nucleic acid sequence not shown
A;Molecule type: DNA
A;Residues: 1-255 <LAR>
A;Cross-references: UNIPROT:P01904; UNIPROT:P04224; UNIPROT:O19462; UNIPROT:Q9XRN9
R;McNicholas, J.; Steinmetz, M.; Hunkapiller, T.; Jones, P.; Hood, L.
Science 218, 1229-1232, 1982
A;Title: DNA sequence of the gene encoding the E-alpha Ia polypeptide of the BALB/c mous
A;Reference number: A94266; MUID:83067428; PMID:6815800
A;Accession: A94266
A;Molecule type: DNA
A;Residues: 29-154,'T',156-201,'D',203-238,'M',240-255 <MCN>
R;Benoist, C.O.; Mathis, D.J.; Kanter, M.R.; Williams II, V.E.; McDevitt, H.O.
Proc. Natl. Acad. Sci. U.S.A. 80, 534-538, 1983
A;Title: The murine Ia alpha chains, E-alpha and A-alpha, show a surprising degree of se
A;Reference number: A93967; MUID:83169693; PMID:6300851
A;Accession: A93967
A;Molecule type: mRNA; DNA
A;Residues: 1-201,'H',203-218,'V',220-238,'M',240-255 <BEN>
R;Hyldig-Nielsen, J.J.; Schenning, L.; Hammerling, U.; Widmark, E.; Heldin, E.; Lind, P.
Peterson, P.A.; Rask, L.
Nucleic Acids Res. 11, 5055-5071, 1983
A;Title: The complete nucleotide sequence of the I-Ealpha(d) immune response gene.
A;Reference number: A21217; MUID:83272951; PMID:6308570
A;Accession: A21217
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-238,'M',240-255 <HYL>
A;Cross-references: GB:K00971; NID:g199498; PIDN:AAA98624.1; PID:g387465
R;Nygard, N.R.; McCarthy, D.M.; Schiffenhauer, J.; Schwartz, B.D.
submitted to the EMBL Data Library, August 1990
A;Description: Nucleotide sequence of MHC class II genes in the NZB mouse.
A;Reference number: S20786
A;Accession: S20788
A;Molecule type: DNA
A;Residues: 29-109 <NYG>
A;Cross-references: EMBL:X54427; NID:g53097; PIDN:CAA38299.1; PID:g53098
C;Genetics:
A;Introns: 110/1; 204/1
C;Superfamily: class II histocompatibility antigen; immunoglobulin homology
C;Keywords: glycoprotein; heterodimer; transmembrane protein
F;1-25/Domain: signal sequence #status predicted <SIG>
F;125-190/Domain: immunoglobulin homology <IMM>
F;217-239/Domain: transmembrane #status predicted <TRM>
F;132-188/Disulfide bonds: #status experimental
F;143/Binding site: carbohydrate (Asn) (covalent) #status experimental

Query Match 63.9%; Score 78; DB 1; Length 255;
Best Local Similarity 68.0%; Pred. No. 0.00018;
Matches 17; Conservative 2; Mismatches 6; Indels 0; Gaps 0;

Qy 1 MAISGVPVLGFFIIAVLMSAQESWA 25
|| | || || ||||||:|:|||
Db 1 MATIGALVLRFFFIAVLMSSQKSWA 25

RESULT 5
S15684
MHC class II histocompatibility antigen Ovar-DR alpha chain - sheep
C;Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
C;Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 09-Jul-2004
C;Accession: I47075; S15684
R;Fabb, S.A.; Maddox, J.F.; Gogolin-Ewens, K.J.; Baker, L.; Wu, M.J.; Brandon, M.R.
Anim. Genet. 24, 249-255, 1993
A;Title: Isolation, characterization and evolution of ovine major histocompatibility com
A;Reference number: I47075; MUID:94057592; PMID:7902039
A;Accession: I47075
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-253 <FA2>
A;Cross-references: UNIPROT:Q30828; GB:M73983; NID:g165867; PIDN:AAA16793.1; PID:g165868
C;Genetics:
A;Gene: MHC Ovar-DRA
C;Superfamily: class II histocompatibility antigen; immunoglobulin homology
F;124-189/Domain: immunoglobulin homology <IMM>

Query Match 63.5%; Score 77.5; DB 2; Length 253;
Best Local Similarity 68.0%; Pred. No. 0.00022;
Matches 17; Conservative 3; Mismatches 4; Indels 1; Gaps 1;

Qy 1 MAISGVPVLGFFIIAVLMSAQESWA 25
|||: ||:|| | | ||:| |||||
Db 1 MAITRVPILGLF-ITVLLSLQESWA 24

RESULT 6
JC2388
class II histocompatibility antigen DR alpha chain (clone W3) precursor - bovine
C;Species: Bos primigenius taurus (cattle)
C;Date: 28-Feb-1995 #sequence_revision 05-Apr-1995 #text_change 09-Jul-2004
C;Accession: JC2388; A37206
R;Aida, Y.; Kohda, C.; Morooka, A.; Nakai, Y.; Ogimoto, K.; Urao, T.; Asahina, M.
Biochem. Biophys. Res. Commun. 204, 195-202, 1994
A;Title: Cloning of cDNAs and the molecular evolution of a bovine MHC class II DRA gene.
A;Reference number: JC2388; MUID:95032095; PMID:7945359
A;Accession: JC2388
A;Molecule type: mRNA
A;Residues: 1-253 <AID>
A;Cross-references: UNIPROT:Q30309; UNIPROT:Q95111; DDBJ:D37955; DDBJ:D37956; NID:g79094
A;Experimental source: lymphoid cell line BLSC-KU-1
R;van der Poel, J.J.; Groenen, M.A.M.; Dijkhof, R.J.M.; Ruyter, D.; Giphart, M.J.
Immunogenetics 31, 29-36, 1990
A;Title: The nucleotide sequence of the bovine MHC class II alpha genes: DRA, DQA, and D
A;Reference number: A37206; MUID:90129153; PMID:2298463
A;Accession: A37206
A;Molecule type: DNA
A;Residues: 28-253 <VAN>
A;Cross-references: GB:M30120; NID:g163370; PIDN:AAA30645.1; PID:g163371
C;Genetics:
A;Introns: 82/1; 176/1
C;Superfamily: class II histocompatibility antigen; immunoglobulin homology
C;Keywords: glycoprotein; transmembrane protein
F;1-24/Domain: signal sequence #status predicted <SIG>
F;25-253/Product: class II antigen DRA chain, major histocompatibility complex #status
F;25-108/Product: alpha 1 #status predicted <AP1>
F;109-202/Product: alpha 2 #status predicted <AP2>
F;124-189/Domain: immunoglobulin homology <IMM>

```
F;203-215/Domain: connecting #status predicted <CNE>
F;216-239/Domain: transmembrane #status predicted <TMM>
F;240-253/Domain: intracellular #status predicted <INT>
F;102/Binding site: carbohydrate (Asn) (covalent) #status predicted

  Query Match             59.4%;  Score 72.5;  DB 2;  Length 253;
  Best Local Similarity   64.0%;  Pred. No. 0.0013;
  Matches   16;  Conservative    3;  Mismatches    5;  Indels    1;  Gaps    1;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              |||: ||:|| | | ||:  |||||
Db          1 MAITRVPILGLF-ITVLIGLQESWA 24


RESULT 7
S06316
class II histocompatibility antigen RT1-D alpha(u) chain precursor - rat
C;Species: Rattus norvegicus (Norway rat)
C;Date: 31-Mar-1990 #sequence_revision 31-Mar-1990 #text_change 09-Jul-2004
C;Accession: S06316
R;Holowachuk, E.W.; Greer, M.K.; Martin, D.R.
Nucleic Acids Res. 15, 10551-10567, 1987
A;Title: The complete sequence of the MHC class II chain RT1D-alpha(u) of the diabetic B
A;Reference number: S06316; MUID:88096585; PMID:3122183
A;Accession: S06316
A;Status: not compared with conceptual translation
A;Molecule type: mRNA
A;Residues: 1-255 <HOL>
A;Cross-references: UNIPROT:Q31281; GB:Y00480; NID:g57163; PIDN:CAA68540.1; PID:g57164
C;Superfamily: class II histocompatibility antigen; immunoglobulin homology
C;Keywords: transmembrane protein
F;1-25/Domain: signal sequence #status predicted <SIG>
F;26-255/Product: class II histocompatibility antigen, RT1-D alpha(u) chain #status pred
F;26-109/Domain: extracellular alpha-1 #status predicted <ACH1>
F;110-203/Domain: extracellular alpha-2 #status predicted <ACH2>
F;125-190/Domain: immunoglobulin homology <IMM>
F;204-216/Domain: connecting peptide #status predicted <CCP>
F;217-239/Domain: transmembrane #status predicted <TMM>
F;240-255/Domain: intracellular #status predicted <INT>

  Query Match             55.7%;  Score 68;  DB 2;  Length 255;
  Best Local Similarity   60.0%;  Pred. No. 0.0063;
  Matches   15;  Conservative    3;  Mismatches    7;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
              ||  |  |: || :||||| |:|||
Db          1 MATIGDLVIRFFFMAVLMSPQKSWA 25


RESULT 8
A46505
SLA-DRAd (MHC Class II) - pig
C;Species: Sus scrofa domestica (domestic pig)
C;Date: 18-Jun-1993 #sequence_revision 18-Nov-1994 #text_change 09-Jul-2004
C;Accession: A46505
R;Hirsch, F.; Germana, S.; Gustafsson, K.; Pratt, K.; Sachs, D.H.; Leguern, C.
J. Immunol. 149, 841-846, 1992
A;Title: Structure and expression of class II alpha genes in miniature swine.
A;Reference number: A46505; MUID:92340887; PMID:1634772
A;Accession: A46505
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-252 <HIR>
A;Cross-references: UNIPROT:Q31065; GB:M93028; NID:g164551; PIDN:AAA31075.1; PID:g164552
A;Note: sequence extracted from NCBI backbone (NCBIN:109901, NCBIP:109902)
C;Superfamily: class II histocompatibility antigen; immunoglobulin homology
F;123-188/Domain: immunoglobulin homology <IMM>

  Query Match             53.3%;  Score 65;  DB 2;  Length 252;
  Best Local Similarity   56.0%;  Pred. No. 0.018;
  Matches   14;  Conservative    4;  Mismatches    5;  Indels    2;  Gaps    1;

Qy          1 MAISGVPVLGFFIIAVLMSAQESWA 25
                | | ||||||| |   ::: |:|||
Db          1 MTILGVPVLGFVI--TILNLQKSWA 23


RESULT 9
I56028
MHC class II protein - mouse
C;Species: Mus musculus (house mouse)
C;Date: 26-Jul-1996 #sequence_revision 26-Jul-1996 #text_change 09-Jul-2004
C;Accession: I56028
R;Donovan, K.A.; Singh, S.K.; David, C.S.; Pease, L.R.
J. Immunol. 142, 4034-4040, 1989
A;Title: molecular analysis and repair of a defective e-f-alpha gene.
A;Reference number: I56028; MUID:89235229; PMID:2497187
A;Accession: I56028
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-23 <RES>
A;Cross-references: UNIPROT:Q95553; GB:M26296; NID:g199308; PIDN:AAA39572.1; PID:g199309
C;Genetics:
A;Gene: E-alpha-f
C;Superfamily: class II histocompatibility antigen; immunoglobulin homology

  Query Match             49.2%;  Score 60;  DB 2;  Length 23;
  Best Local Similarity   60.9%;  Pred. No. 0.012;
  Matches   14;  Conservative    3;  Mismatches    6;  Indels    0;  Gaps    0;

Qy          1 MAISGVPVLGFFIIAVLMSAQES 23
              ||  |  :| || ||||||:|:|
Db          1 MATIGALLLRFFFIAVLMSSQKS 23


RESULT 10
E86252
hypothetical protein [imported] - Arabidopsis thaliana
C;Species: Arabidopsis thaliana (mouse-ear cress)
C;Date: 02-Mar-2001 #sequence_revision 02-Mar-2001 #text_change 09-Jul-2004
C;Accession: E86252
R;Theologis, A.; Ecker, J.R.; Palm, C.J.; Federspiel, N.A.; Kaul, S.; White, O.; Alonso,
 Chin, C.W.; Chung, M.K.; Conn, L.; Conway, A.B.; Conway, A.R.; Creasy, T.H.; Dewar, K.;
ansen, N.F.; Hughes, B.; Huizar, L.
Nature 408, 816-820, 2000
A;Authors: Hunter, J.L.; Jenkins, J.; Johnson-Hopson, C.; Khan, S.; Khaykin, E.; Kim, C.
C.A.; Li, J.H.; Li, Y.; Lin, X.; Liu, S.X.; Liu, Z.A.; Luros, J.S.; Maiti, R.; Marziali,
Rizzo, M.; Rooney, T.; Rowley, D.; Sakano, H.
A;Authors: Salzberg, S.L.; Schwartz, J.R.; Shinn, P.; Southwick, A.M.; Sun, H.; Tallon, I
ker, M.; Wu, D.; Yu, G.; Fraser, C.M.; Venter, J.C.; Davis, R.W.
A;Title: Sequence and analysis of chromosome 1 of the plant Arabidopsis.
A;Reference number: A86141; MUID:21016719; PMID:11130712
A;Accession: E86252
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-477 <STO>
A;Cross-references: UNIPROT:O65399; GB:AE005172; NID:g3157949; PIDN:AAC17632.1; GSPDB:GN(
C;Genetics:
A;Map position: 1

  Query Match             40.2%;  Score 49;  DB 2;  Length 477;
  Best Local Similarity   52.4%;  Pred. No. 9.4;
  Matches   11;  Conservative    3;  Mismatches    7;  Indels    0;  Gaps    0;

Qy          3 ISGVPVLGFFIIAVLMSAQES 23
              :| |||| ||   :|:||  |
Db          7 VSTVPVLFFFFTLLLISANSS 27


RESULT 11
C75596
ExoP-related protein - Deinococcus radiodurans (strain R1)
C;Species: Deinococcus radiodurans
C;Date: 03-Dec-1999 #sequence_revision 03-Dec-1999 #text_change 09-Jul-2004
C;Accession: C75596
R;White, O.; Eisen, J.A.; Heidelberg, J.F.; Hickey, E.K.; Peterson, J.D.; Dodson, R.J.; H
```

, M.; Shen, M.; Vamathevan, J.J.; Lam, P.; McDonald, L.; Utterback, T.; Zalewski, C.; Ma
S.; Smith, H.O.; Venter, J.C.; Fraser, C.M.
Science 286, 1571-1577, 1999
A;Title: Genome sequence of the radioresistant bacterium Deinococcus radiodurans R1.
A;Reference number: A75250; MUID:20036896; PMID:10567266
A;Accession: C75596
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-556 <WHI>
A;Cross-references: UNIPROT:Q9RZC1; GB:AE001862; GB:AE001825; NID:g6460468; PIDN:AAF1227
A;Experimental source: strain R1
C;Genetics:
A;Gene: DRA0033
A;Map position: 2

  Query Match 40.2%; Score 49; DB 2; Length 556;
  Best Local Similarity 40.9%; Pred. No. 11;
  Matches 9; Conservative 8; Mismatches 5; Indels 0; Gaps 0;

Qy 4 SGVPVLGFFIIAVLMSAQESWA 25
Db 522 SGLPMLGFILNKVSASSRDSYS 543

RESULT 12
S75553
hypothetical protein ssl1520 - Synechocystis sp. (strain PCC 6803)
C;Species: Synechocystis sp.
A;Variety: PCC 6803
C;Date: 25-Apr-1997 #sequence_revision 25-Apr-1997 #text_change 09-Jul-2004
C;Accession: S75553
R;Kaneko, T.; Sato, S.; Kotani, H.; Tanaka, A.; Asamizu, E.; Nakamura, Y.; Miyajima, N.;
o, K.; Okumura, S.; Shimpo, S.; Takeuchi, C.; Wada, T.; Watanabe, A.; Yamada, M.; Yasuda
DNA Res. 3, 109-136, 1996
A;Title: Sequence analysis of the genome of the unicellular cyanobacterium Synechocystis
s.
A;Reference number: S74322; MUID:97061201; PMID:8905231
A;Accession: S75553
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-75 <KAN>
A;Cross-references: UNIPROT:P74039; EMBL:D90911; GB:AB001339; NID:g1653083; PIDN:BAA1811
A;Note: the nucleotide sequence was submitted to the EMBL Data Library, June 1996

  Query Match 39.3%; Score 48; DB 2; Length 75;
  Best Local Similarity 36.0%; Pred. No. 2.5;
  Matches 9; Conservative 9; Mismatches 3; Indels 4; Gaps 1;

Qy 1 MAISGVPVLGF----FIIAVLMSAQ 21
Db 11 LLVMGIPLLGVLYCAFILAVMLSSE 35

RESULT 13
B72367
oligopeptide ABC transporter, permease protein - Thermotoga maritima (strain MSB8)
C;Species: Thermotoga maritima
C;Date: 11-Jun-1999 #sequence_revision 11-Jun-1999 #text_change 09-Jul-2004
C;Accession: B72367
R;Nelson, K.E.; Clayton, R.A.; Gill, S.R.; Gwinn, M.L.; Dodson, R.J.; Haft, D.H.; Hickey
Garrett, M.M.; Stewart, A.M.; Cotton, M.D.; Pratt, M.S.; Phillips, C.A.; Richardson, D.;
C.M.
Nature 399, 323-329, 1999
A;Title: Evidence for lateral gene transfer between Archaea and Bacteria from genome seq
A;Reference number: A72200; MUID:99287316; PMID:10360571
A;Accession: B72367
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-321 <ARN>
A;Cross-references: UNIPROT:Q9WZ02; GB:AE001728; GB:AE000512; NID:g4981027; PIDN:AAD3561
A;Experimental source: strain MSB8
C;Genetics:
A;Gene: TM0532
C;Superfamily: oligopeptide permease protein oppB

  Query Match 39.3%; Score 48; DB 2; Length 321;
  Best Local Similarity 38.5%; Pred. No. 9.3;
  Matches 10; Conservative 7; Mismatches 7; Indels 2; Gaps 1;

Qy 1 MAISGVPVLGFF--IIAVLMSAQESW 24
Db 136 VAFSGIALPGFFLAILLLYMAAKTGW 161

RESULT 14
AH0956
probable membrane transport protein STY3932 [imported] - Salmonella enterica subsp. ente
C;Species: Salmonella enterica subsp. enterica serovar Typhi
A;Note: this species has also been called Salmonella typhi
C;Date: 09-Nov-2001 #sequence_revision 09-Nov-2001 #text_change 18-Nov-2002
C;Accession: AH0956
R;Parkhill, J.; Dougan, G.; James, K.D.; Thomson, N.R.; Pickard, D.; Wain, J.; Churcher,
th, T.; Connerton, P.; Cronin, A.; Davis, P.; Davies, R.M.; Dowd, L.; White, N.; Farrar,
, S.; Moule, S.; O'Gaora, P.
Nature 413, 848-852, 2001
A;Authors: Parry, C.; Quail, M.; Rutherford, K.; Simmonds, M.; Skelton, J.; Stevens, K.;
A;Title: Complete genome sequence of a multiple drug resistant Salmonella enterica serov
A;Reference number: AB0502; MUID:21534947; PMID:11677608
A;Accession: AH0956
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-487 <PAR>
A;Cross-references: GB:AL513382; PIDN:CAD03148.1; PID:g16504783; GSPDB:GN00176
C;Genetics:
A;Gene: STY3932
C;Superfamily: conserved hypothetical protein HI0125

  Query Match 39.3%; Score 48; DB 2; Length 487;
  Best Local Similarity 83.3%; Pred. No. 14;
  Matches 10; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 8 VLGFFIIAVLMS 19
Db 231 VLGFFIIAILAS 242

RESULT 15
B83758
hypothetical protein BH0866 [imported] - Bacillus halodurans (strain C-125)
C;Species: Bacillus halodurans
C;Date: 01-Dec-2000 #sequence_revision 01-Dec-2000 #text_change 09-Jul-2004
C;Accession: B83758
R;Takami, H.; Nakasone, K.; Takaki, Y.; Maeno, G.; Sasaki, R.; Masui, N.; Fuji, F.; Hira
Nucleic Acids Res. 28, 4317-4331, 2000
A;Title: Complete genome sequence of the alkaliphilic bacterium Bacillus halodurans and
A;Reference number: A83650; MUID:20512582; PMID:11058132
A;Accession: B83758
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-513 <STO>
A;Cross-references: UNIPROT:Q9KEI6; GB:AP001510; GB:BA000004; NID:g10173440; PIDN:BAB045
A;Experimental source: strain C-125
C;Genetics:
A;Gene: BH0866

  Query Match 39.3%; Score 48; DB 2; Length 513;
  Best Local Similarity 38.7%; Pred. No. 14;
  Matches 12; Conservative 6; Mismatches 7; Indels 6; Gaps 2;

Qy 1 MAISGVP-VLGFFIIAVLM-----SAQESWA 25
Db 384 IGFTGLPLLLGFIVIAALINLMVASASAKWA 414

Search completed: August 19, 2005, 23:34:34
Job time : 34.4324 secs

GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: August 19, 2005, 23:18:33 ; Search time 76.8649 Seconds
(without alignments)
60.380 Million cell updates/sec

Title: US-10-603-062-16
Perfect score: 67
Sequence: 1 LMGTLGIVCPIC 12

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 2105692 seqs, 386760381 residues

Total number of hits satisfying chosen parameters: 2105692

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_16Dec04:*
1: geneseqp1980s:*
2: geneseqp1990s:*
3: geneseqp2000s:*
4: geneseqp2001s:*
5: geneseqp2002s:*
6: geneseqp2003as:*
7: geneseqp2003bs:*
8: geneseqp2004s:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	67	100.0	12	2	AAY09332	Aay09332 Human pap
2	67	100.0	12	4	AAG64707	Aag64707 HPV immun
3	67	100.0	12	4	AAB20196	Aab20196 Immunogen
4	67	100.0	13	2	AAY09333	Aay09333 Human pap
5	67	100.0	13	2	AAY09342	Aay09342 Human pap
6	67	100.0	13	2	AAY09334	Aay09334 Human pap
7	67	100.0	13	3	AAB33711	Aab33711 Antigenic
8	67	100.0	13	4	AAG64709	Aag64709 HPV immun
9	67	100.0	13	4	AAG64708	Aag64708 HPV immun
10	67	100.0	13	4	AAG64715	Aag64715 HPV immun
11	67	100.0	13	4	AAB20198	Aab20198 HPV type
12	67	100.0	13	4	AAB20199	Aab20199 HPV type
13	67	100.0	13	4	AAB20206	Aab20206 HPV type
14	67	100.0	13	6	ABU96663	Abu96663 MHC class
15	67	100.0	14	6	AAO16633	Aao16633 Human pap
16	67	100.0	15	2	AAY45453	Aay45453 Immunogen
17	67	100.0	15	8	ADN65115	Adn65115 HLA bindi
18	67	100.0	15	8	ADQ29045	Adq29045 Human pap
19	67	100.0	15	8	ADR42342	Adr42342 HPV 16 E7
20	67	100.0	16	3	AAB33710	Aab33710 MHC class
21	67	100.0	16	4	AAG64710	Aag64710 HPV immun
22	67	100.0	16	4	AAG93806	Aag93806 Human pap
23	67	100.0	16	4	AAB20200	Aab20200 HPV type
24	67	100.0	16	6	ABU96662	Abu96662 MHC class
25	67	100.0	17	2	AAY09335	Aay09335 Human pap
26	67	100.0	17	4	AAB95962	Aab95962 HPV 16 E7
27	67	100.0	17	8	ADN59118	Adn59118 Human pap
28	67	100.0	19	4	AAB31114	Aab31114 A polyepi
29	67	100.0	19	4	AAB30948	Aab30948 Peptide c
30	67	100.0	19	4	AAB31022	Aab31022 Polyepito
31	67	100.0	20	6	AAO22635	Aao22635 HPV-16 E7
32	67	100.0	21	2	AAR15572	Aar15572 Immunopep
33	67	100.0	21	5	ABP47279	Abp47279 HPV16 E7
34	67	100.0	21	6	ABP70259	Abp70259 Peptide d
35	67	100.0	28	2	AAW93291	Aaw93291 Human pap
36	67	100.0	30	2	AAR15576	Aar15576 Immunopep
37	67	100.0	38	2	AAY09343	Aay09343 Human pap
38	67	100.0	38	4	AAG64720	Aag64720 HPV immun
39	67	100.0	38	4	AAB20217	Aab20217 HLA-DR-al
40	67	100.0	50	6	AAO16632	Aao16632 Human pap
41	67	100.0	92	7	ADF74305	Adf74305 Human pap
42	67	100.0	98	2	AAR22767	Aar22767 HPV E7 pe
43	67	100.0	98	2	AAR42361	Aar42361 Human pap
44	67	100.0	98	2	AAW46886	Aaw46886 Amino aci
45	67	100.0	98	2	AAY08020	Aay08020 Human pap

ALIGNMENTS

RESULT 1
AAY09332
ID AAY09332 standard; peptide; 12 AA.
XX
AC AAY09332;
XX
DT 08-JUL-1999 (first entry)
XX
DE Human papillomavirus E7 protein immunogenic peptide #1.
XX
KW Human papillomavirus; HPV; E7 protein; immunogenic; immune response;
KW infection; exophytic coneyloma; cervical cancer; respiratory papilloma;
KW conjunctival papilloma; genital tract infection.
XX
OS Human papillomavirus.
OS Synthetic.
XX
PN WO9918995-A1.
XX
PD 22-APR-1999.
XX
PF 09-OCT-1998; 98WO-US021456.
XX
PR 09-OCT-1997; 97US-00948378.
XX
PA (PANG-) PANGAEA PHARM INC.
XX
PI Urban RG, Chicz RM, Collins EJ, Hedley ML;
XX
DR WPI; 1999-277445/23.
XX
PT New human papilloma virus peptides - used for preventing or treating e.g.
PT exophytic coneyloma, cervical cancer, respiratory papilloma, conjunctival
PT papilloma or genital tract infection.
XX
PS Claim 1; Page 24; 40pp; English.
XX
CC The present invention describes human papillomavirus peptides which are
CC used for preventing or treating e.g. exophytic condyloma, cervical
CC cancer, respiratory papilloma, conjunctival papilloma or genital tract
CC infection. The peptides correspond to human papilloma virus (HPV) E7
CC sequences. The peptides and DNA encoding them can be used for inducing an
CC immune response to HPV in a mammal. They can be used for treating a human
CC who suffers from or is at risk of conditions such as exophytic condyloma,
CC flat condyloma, cervical cancer, respiratory papilloma, conjunctival
CC papilloma, genital-tract HPV infection and cervical dysplasia. They can
CC also be used for treating or preventing e.g. bowenoid papulosis, anal
CC dysplasia, vulval cancer, or prostate cancer

XX
SQ Sequence 12 AA;

Query Match 100.0%; Score 67; DB 2; Length 12;
Best Local Similarity 100.0%; Pred. No. 0.00041;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LMGTLGIVCPIC 12
||||||||||||
Db 1 LMGTLGIVCPIC 12

RESULT 2
AAG64707
ID AAG64707 standard; peptide; 12 AA.
XX
AC AAG64707;
XX
DT 24-SEP-2001 (first entry)
XX
DE HPV immunogenic peptide SEQ ID 16.
XX
KW Immunogenic peptide; HPV; class I restricted T cell epitope; cytostatic;
KW antiviral; exophytic condyloma; flat condyloma; cervical cancer;
KW respiratory papilloma; conjunctival papilloma; genital-tract HPV;
KW cervical dysplasia.
XX
OS Human papillomavirus.
XX
PN US2001006639-A1.
XX
PD 05-JUL-2001.
XX
PF 12-JAN-2001; 2001US-00759960.
XX
PR 09-OCT-1997; 97US-0061657P.
PR 09-OCT-1998; 98US-00169425.
XX
PA (ZYCO-) ZYCOS INC.
XX
PI Urban RG, Chiez RM, Collins EJ, Hedley ML;
XX
DR WPI; 2001-407585/43.
XX
PT Immunogenic peptides from human papilloma virus type 16 E7 protein that
PT comprise overlapping class I restricted T cell epitopes, useful in
PT vaccines for treating or preventing as exophytic condyloma, flat
PT condyloma and cervical cancer.
XX
PS Claim 1; Page 7; 12pp; English.
XX
CC This invention relates to immunogenic peptides from human papillomavirus
CC (HPV) type 16 E7 protein. The peptides are overlapping class I restricted
CC T cell epitopes. The invention includes a therapeutic composition and
CC vaccine containing the immunogenic peptides. Use of the composition
CC results in cytostatic and/or antiviral activity. The peptides and nucleic
CC acids encoding them can be used as vaccines to treat or prevent disease
CC conditions such as exophytic condyloma, flat condyloma, cervical cancer,
CC respiratory papilloma, conjunctival papilloma, genital-tract HPV
CC infection, and cervical dysplasia. The present sequence represents a
CC peptide of the invention
XX
SQ Sequence 12 AA;

Query Match 100.0%; Score 67; DB 4; Length 12;
Best Local Similarity 100.0%; Pred. No. 0.00041;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LMGTLGIVCPIC 12
||||||||||||
Db 1 LMGTLGIVCPIC 12

RESULT 3
AAB20196
ID AAB20196 standard; peptide; 12 AA.
XX
AC AAB20196;
XX
DT 14-MAY-2001 (first entry)
XX
DE Immunogenic peptide from HPV type 16 E7 protein used in vaccine.
XX
KW Immunogenic peptide; immunogen; HPV; E7 protein; vaccine; infection;
KW gene therapy; exophytic condyloma; flat condyloma; cervical cancer;
KW respiratory papilloma; conjunctival papilloma; cervical dysplasia.
XX
OS Human papillomavirus type 16.
XX
PN US6183746-B1.
XX
PD 06-FEB-2001.
XX
PF 09-OCT-1998; 98US-00169425.
XX
PR 09-OCT-1997; 97US-0061657P.
XX
PA (ZYCO-) ZYCOS INC.
XX
PI Urban RG, Chicz RM, Collins EJ, Hedley ML;
XX
DR WPI; 2001-190939/19.
XX
PT Inducing an immune response in a mammal for prophylaxis and treatment of
PT human papilloma virus infections such as cervical cancer, comprises
PT administering immunogenic peptides from the papilloma virus type 16 E7
PT protein.
XX
PS Claim 1; Col 29; 23pp; English.
XX
CC The present sequence is that of an immunogenic peptide from human
CC papillomavirus (HPV) type 16 E7 protein. The peptide contains overlapping
CC class I HLA binding, T-cell epitopes and can induce a cytotoxic T-
CC lymphocyte response in an animal. Claimed methods for inducing an immune
CC response in a mammal, including a human, involve administering to the
CC mammal a nucleic acid or plasmid encoding a polypeptide comprising the
CC present sequence, or comprising a first peptide which controls
CC intracellular trafficking linked to the present immunogenic peptide. The
CC polypeptides and nucleic acids of the invention are used as vaccines
CC prophylactically or therapeutically in subjects having, suspected of
CC having, or at risk of exophytic condyloma, flat condyloma, cervical
CC cancer, respiratory papilloma, conjunctival papilloma, genital-tract HPV
CC infection and cervical dysplasia (claimed)
XX
SQ Sequence 12 AA;

Query Match 100.0%; Score 67; DB 4; Length 12;
Best Local Similarity 100.0%; Pred. No. 0.00041;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LMGTLGIVCPIC 12
||||||||||||
Db 1 LMGTLGIVCPIC 12

RESULT 4
AAY09333
ID AAY09333 standard; peptide; 13 AA.
XX
AC AAY09333;
XX
DT 08-JUL-1999 (first entry)
XX
DE Human papillomavirus E7 protein immunogenic peptide #2.
XX
KW Human papillomavirus; HPV; E7 protein; immunogenic; immune response;

KW infection; exophytic coneyloma; cervical cancer; respiratory papilloma;
KW conjunctival papilloma; genital tract infection.
XX
OS Human papillomavirus.
OS Synthetic.
XX
PN WO9918995-A1.
XX
PD 22-APR-1999.
XX
PF 09-OCT-1998; 98WO-US021456.
XX
PR 09-OCT-1997; 97US-00948378.
XX
PA (PANG-) PANGAEA PHARM INC.
XX
PI Urban RG, Chicz RM, Collins EJ, Hedley ML;
XX
DR WPI; 1999-277445/23.
XX
PT New human papilloma virus peptides - used for preventing or treating e.g.
PT exophytic coneyloma, cervical cancer, respiratory papilloma, conjunctival
PT papilloma or genital tract infection.
XX
PS Claim 2; Page 24; 40pp; English.
XX
CC The present invention describes human papillomavirus peptides which are
CC used for preventing or treating e.g. exophytic condyloma, cervical
CC cancer, respiratory papilloma, conjunctival papilloma or genital tract
CC infection. The peptides correspond to human papilloma virus (HPV) E7
CC sequences. The peptides and DNA encoding them can be used for inducing an
CC immune response to HPV in a mammal. They can be used for treating a human
CC who suffers from or is at risk of conditions such as exophytic condyloma,
CC flat condyloma, cervical cancer, respiratory papilloma, conjunctival
CC papilloma, genital-tract HPV infection and cervical dysplasia. They can
CC also be used for treating or preventing e.g. bowenoid papulosis, anal
CC dysplasia, vulval cancer, or prostate cancer
XX
SQ Sequence 13 AA;

Query Match 100.0%; Score 67; DB 2; Length 13;
Best Local Similarity 100.0%; Pred. No. 0.00044;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LMGTLGIVCPIC 12
||||||||||||
Db 2 LMGTLGIVCPIC 13

RESULT 5
AAY09342
ID AAY09342 standard; peptide; 13 AA.
XX
AC AAY09342;
XX
DT 08-JUL-1999 (first entry)
XX
DE Human papillomavirus E7 protein immunogenic peptide #11.
XX
KW Human papillomavirus; HPV; E7 protein; immunogenic; immune response;
KW infection; exophytic coneyloma; cervical cancer; respiratory papilloma;
KW conjunctival papilloma; genital tract infection.
XX
OS Human papillomavirus.
OS Synthetic.
XX
PN WO9918995-A1.
XX
PD 22-APR-1999.
XX
PF 09-OCT-1998; 98WO-US021456.
XX
PR 09-OCT-1997; 97US-00948378.
XX
PA (PANG-) PANGAEA PHARM INC.
XX
PI Urban RG, Chicz RM, Collins EJ, Hedley ML;
XX
DR WPI; 1999-277445/23.
XX
PT New human papilloma virus peptides - used for preventing or treating e.g.
PT exophytic coneyloma, cervical cancer, respiratory papilloma, conjunctival
PT papilloma or genital tract infection.
XX
PS Claim 15; Page 25-26; 40pp; English.
XX
CC The present invention describes human papillomavirus peptides which are
CC used for preventing or treating e.g. exophytic condyloma, cervical
CC cancer, respiratory papilloma, conjunctival papilloma or genital tract
CC infection. The peptides correspond to human papilloma virus (HPV) E7
CC sequences. The peptides and DNA encoding them can be used for inducing an
CC immune response to HPV in a mammal. They can be used for treating a human
CC who suffers from or is at risk of conditions such as exophytic condyloma,
CC flat condyloma, cervical cancer, respiratory papilloma, conjunctival
CC papilloma, genital-tract HPV infection and cervical dysplasia. They can
CC also be used for treating or preventing e.g. bowenoid papulosis, anal
CC dysplasia, vulval cancer, or prostate cancer
XX
SQ Sequence 13 AA;

Query Match 100.0%; Score 67; DB 2; Length 13;
Best Local Similarity 100.0%; Pred. No. 0.00044;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LMGTLGIVCPIC 12
||||||||||||
Db 2 LMGTLGIVCPIC 13

RESULT 6
AAY09334
ID AAY09334 standard; peptide; 13 AA.
XX
AC AAY09334;
XX
DT 08-JUL-1999 (first entry)
XX
DE Human papillomavirus E7 protein immunogenic peptide #3.
XX
KW Human papillomavirus; HPV; E7 protein; immunogenic; immune response;
KW infection; exophytic coneyloma; cervical cancer; respiratory papilloma;
KW conjunctival papilloma; genital tract infection.
XX
OS Human papillomavirus.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 1
FT /label= Met, Ala, Ser, Arg, Lys, Gly, Gln, Asp, Glu
XX
PN WO9918995-A1.
XX
PD 22-APR-1999.
XX
PF 09-OCT-1998; 98WO-US021456.
XX
PR 09-OCT-1997; 97US-00948378.
XX
PA (PANG-) PANGAEA PHARM INC.
XX
PI Urban RG, Chicz RM, Collins EJ, Hedley ML;
XX
DR WPI; 1999-277445/23.
XX
PT New human papilloma virus peptides - used for preventing or treating e.g.
PT exophytic coneyloma, cervical cancer, respiratory papilloma, conjunctival

```
PT   papilloma or genital tract infection.
XX
PS   Claim 3; Page 24; 40pp; English.
XX
CC   The present invention describes human papillomavirus peptides which are
CC   used for preventing or treating e.g. exophytic condyloma, cervical
CC   cancer, respiratory papilloma, conjunctival papilloma or genital tract
CC   infection. The peptides correspond to human papilloma virus (HPV) E7
CC   sequences. The peptides and DNA encoding them can be used for inducing an
CC   immune response to HPV in a mammal. They can be used for treating a human
CC   who suffers from or is at risk of conditions such as exophytic condyloma,
CC   flat condyloma, cervical cancer, respiratory papilloma, conjunctival
CC   papilloma, genital-tract HPV infection and cervical dysplasia. They can
CC   also be used for treating or preventing e.g. bowenoid papulosis, anal
CC   dysplasia, vulval cancer, or prostate cancer
XX
SQ   Sequence 13 AA;

  Query Match             100.0%;  Score 67;  DB 2;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00044;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 7
AAB33711
ID   AAB33711 standard; peptide; 13 AA.
XX
AC   AAB33711;
XX
DT   26-JAN-2001  (first entry)
XX
DE   Antigenic MHC class I-binding peptide SEQ ID 110.
XX
KW   Microparticle; nucleic acid delivery; immunogenic peptide; MHC I; MHC II;
KW   major histocompatibility complex; vaginal tissue; mucosal tissue.
XX
OS   Unidentified.
XX
PN   WO200053161-A2.
XX
PD   14-SEP-2000.
XX
PF   10-MAR-2000; 2000WO-US006578.
XX
PR   11-MAR-1999;   99US-00266463.
PR   27-MAY-1999;   99US-00321346.
XX
PA   (ZYCO-) ZYCOS INC.
XX
PI   Lunsford LB,  Putnam D,  Hedley ML;
XX
DR   WPI; 2000-638130/61.
XX
PT   Microparticles useful for administering a nucleic acid into the mucosal
PT   tissue preferably vaginal tissue of an animal, comprises a polymeric
PT   matrix, a lipid and a nucleic acid molecule.
XX
PS   Disclosure; Page 22; 96pp; English.
XX
CC   The present invention relates to microparticles which are less than 20
CC   microns in diameter, which comprise a polymeric matrix, a lipid and a
CC   nucleic acid molecule. The microparticle is specifically not encapsulated
CC   in a liposome and does not comprise a cell. The nucleotide sequence
CC   encodes an expression product that binds to major histocompatibility
CC   complex (MHC) type I or II molecules. Peptides AAB33602-B33647 represent
CC   MHC class II associated immunogenic peptides, and AAB33648-B33710
CC   represent MHC class I associated immunogenic peptides. The peptides are
CC   examples of the expression products of the nucleotide sequences which can
CC   be included in the microparticles of the invention. Sequences AAB33711-
CC   B33716 represent alternative expression products and nuclear localisation
CC   signals also used in the invention. The microparticles are useful for
CC   administering a nucleic acid into the mucosal tissue preferably vaginal
CC   tissue of an animal
XX
SQ   Sequence 13 AA;

  Query Match             100.0%;  Score 67;  DB 3;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00044;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 8
AAG64709
ID   AAG64709 standard; peptide; 13 AA.
XX
AC   AAG64709;
XX
DT   24-SEP-2001  (first entry)
XX
DE   HPV immunogenic peptide SEQ ID 19.
XX
KW   Immunogenic peptide; HPV; class I restricted T cell epitope; cytostatic;
KW   antiviral; exophytic condyloma; flat condyloma; cervical cancer;
KW   respiratory papilloma; conjunctival papilloma; genital-tract HPV;
KW   cervical dysplasia.
XX
OS   Human papillomavirus.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 1
FT                   /label= Met, Ala, Ser, Arg, Lys, Gly, Gln, Asp, Glu
XX
PN   US2001006639-A1.
XX
PD   05-JUL-2001.
XX
PF   12-JAN-2001; 2001US-00759960.
XX
PR   09-OCT-1997;   97US-0061657P.
PR   09-OCT-1998;   98US-00169425.
XX
PA   (ZYCO-) ZYCOS INC.
XX
PI   Urban RG,  Chiez RM,  Collins EJ,  Hedley ML;
XX
DR   WPI; 2001-407585/43.
XX
PT   Immunogenic peptides from human papilloma virus type 16 E7 protein that
PT   comprise overlapping class I restricted T cell epitopes, useful in
PT   vaccines for treating or preventing as exophytic condyloma, flat
PT   condyloma and cervical cancer.
XX
PS   Claim 3; Page 7; 12pp; English.
XX
CC   This invention relates to immunogenic peptides from human papillomavirus
CC   (HPV) type 16 E7 protein. The peptides are overlapping class I restricted
CC   T cell epitopes. The invention includes a therapeutic composition and
CC   vaccine containing the immunogenic peptides. Use of the composition
CC   results in cytostatic and/or antiviral activity. The peptides and nucleic
CC   acids encoding them can be used as vaccines to treat or prevent disease
CC   conditions such as exophytic condyloma, flat condyloma, cervical cancer,
CC   respiratory papilloma, conjunctival papilloma, genital-tract HPV
CC   infection, and cervical dysplasia. The present sequence represents a
CC   peptide of the invention
XX
SQ   Sequence 13 AA;

  Query Match             100.0%;  Score 67;  DB 4;  Length 13;
```

```
  Best Local Similarity   100.0%;  Pred. No. 0.00044;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 9
AAG64708
ID   AAG64708 standard; peptide; 13 AA.
XX
AC   AAG64708;
XX
DT   24-SEP-2001  (first entry)
XX
DE   HPV immunogenic peptide SEQ ID 3.
XX
KW   Immunogenic peptide; HPV; class I restricted T cell epitope; cytostatic;
KW   antiviral; exophytic condyloma; flat condyloma; cervical cancer;
KW   respiratory papilloma; conjunctival papilloma; genital-tract HPV;
KW   cervical dysplasia.
XX
OS   Human papillomavirus.
XX
PN   US2001006639-A1.
XX
PD   05-JUL-2001.
XX
PF   12-JAN-2001; 2001US-00759960.
XX
PR   09-OCT-1997;   97US-0061657P.
PR   09-OCT-1998;   98US-00169425.
XX
PA   (ZYCO-) ZYCOS INC.
XX
PI   Urban RG,  Chiez RM,  Collins EJ,  Hedley ML;
XX
DR   WPI; 2001-407585/43.
XX
PT   Immunogenic peptides from human papilloma virus type 16 E7 protein that
PT   comprise overlapping class I restricted T cell epitopes, useful in
PT   vaccines for treating or preventing as exophytic condyloma, flat
PT   condyloma and cervical cancer.
XX
PS   Claim 2; Page 7; 12pp; English.
XX
CC   This invention relates to immunogenic peptides from human papillomavirus
CC   (HPV) type 16 E7 protein. The peptides are overlapping class I restricted
CC   T cell epitopes. The invention includes a therapeutic composition and
CC   vaccine containing the immunogenic peptides. Use of the composition
CC   results in cytostatic and/or antiviral activity. The peptides and nucleic
CC   acids encoding them can be used as vaccines to treat or prevent disease
CC   conditions such as exophytic condyloma, flat condyloma, cervical cancer,
CC   respiratory papilloma, conjunctival papilloma, genital-tract HPV
CC   infection, and cervical dysplasia. The present sequence represents a
CC   peptide of the invention
XX
SQ   Sequence 13 AA;

  Query Match             100.0%;  Score 67;  DB 4;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00044;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 10
AAG64715
ID   AAG64715 standard; peptide; 13 AA.
XX
AC   AAG64715;
XX
DT   24-SEP-2001  (first entry)
XX
DE   HPV immunogenic peptide SEQ ID 4.
XX
KW   Immunogenic peptide; HPV; class I restricted T cell epitope; cytostatic;
KW   antiviral; exophytic condyloma; flat condyloma; cervical cancer;
KW   respiratory papilloma; conjunctival papilloma; genital-tract HPV;
KW   cervical dysplasia.
XX
OS   Human papillomavirus.
XX
PN   US2001006639-A1.
XX
PD   05-JUL-2001.
XX
PF   12-JAN-2001; 2001US-00759960.
XX
PR   09-OCT-1997;   97US-0061657P.
PR   09-OCT-1998;   98US-00169425.
XX
PA   (ZYCO-) ZYCOS INC.
XX
PI   Urban RG,  Chiez RM,  Collins EJ,  Hedley ML;
XX
DR   WPI; 2001-407585/43.
XX
PT   Immunogenic peptides from human papilloma virus type 16 E7 protein that
PT   comprise overlapping class I restricted T cell epitopes, useful in
PT   vaccines for treating or preventing as exophytic condyloma, flat
PT   condyloma and cervical cancer.
XX
PS   Claim 15; Page 7; 12pp; English.
XX
CC   This invention relates to immunogenic peptides from human papillomavirus
CC   (HPV) type 16 E7 protein. The peptides are overlapping class I restricted
CC   T cell epitopes. The invention includes a therapeutic composition and
CC   vaccine containing the immunogenic peptides. Use of the composition
CC   results in cytostatic and/or antiviral activity. The peptides and nucleic
CC   acids encoding them can be used as vaccines to treat or prevent disease
CC   conditions such as exophytic condyloma, flat condyloma, cervical cancer,
CC   respiratory papilloma, conjunctival papilloma, genital-tract HPV
CC   infection, and cervical dysplasia. The present sequence represents a
CC   peptide of the invention
XX
SQ   Sequence 13 AA;

  Query Match             100.0%;  Score 67;  DB 4;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00044;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 11
AAB20198
ID   AAB20198 standard; peptide; 13 AA.
XX
AC   AAB20198;
XX
DT   14-MAY-2001  (first entry)
XX
DE   HPV type 16 E7 protein immunogenic peptide A2.1/4 used in vaccine.
XX
KW   Immunogenic peptide; immunogen; HPV; E7 protein; vaccine; infection;
KW   gene therapy; exophytic condyloma; flat condyloma; cervical cancer;
KW   respiratory papilloma; conjunctival papilloma; cervical dysplasia.
XX
OS   Human papillomavirus type 16.
XX
```

PN US6183746-B1.
XX
PD 06-FEB-2001.
XX
PF 09-OCT-1998; 98US-00169425.
XX
PR 09-OCT-1997; 97US-0061657P.
XX
PA (ZYCO-) ZYCOS INC.
XX
PI Urban RG, Chicz RM, Collins EJ, Hedley ML;
XX
DR WPI; 2001-190939/19.
XX
PT Inducing an immune response in a mammal for prophylaxis and treatment of
PT human papilloma virus infections such as cervical cancer, comprises
PT administering immunogenic peptides from the papilloma virus type 16 E7
PT protein.
XX
PS Claim 16; Col 31; 23pp; English.
XX
CC The present sequence is that of immunogenic peptide A2.1/4 derived from
CC human papillomavirus (HPV) type 16 E7 protein. The peptide contains at
CC least 4 overlapping class I restricted T-cell epitopes. The A2.1/4
CC peptide, or peptides derived from it, can activate and expand peripheral
CC blood lymphocytes from humans, and cause cytotoxic T-lymphocyte-mediated
CC lysis of target cells transformed with HPV16. A claimed method for
CC inducing an immune response in a mammal, including a human, involves
CC administering a nucleic acid coding for a peptide comprising the present
CC sequence. The immunogenic peptides and nucleic acids of the invention are
CC used as vaccines prophylactically or therapeutically in subjects having,
CC suspected of having, or at risk of exophytic condyloma, flat condyloma,
CC cervical cancer, respiratory papilloma, conjunctival papilloma, genital-
CC tract HPV infection and cervical dysplasia (claimed)
XX
SQ Sequence 13 AA;

Query Match 100.0%; Score 67; DB 4; Length 13;
Best Local Similarity 100.0%; Pred. No. 0.00044;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LMGTLGIVCPIC 12
||||||||||||
Db 2 LMGTLGIVCPIC 13

RESULT 12
AAB20199
ID AAB20199 standard; peptide; 13 AA.
XX
AC AAB20199;
XX
DT 14-MAY-2001 (first entry)
XX
DE HPV type 16 E7 protein immunogenic peptide used in vaccine.
XX
KW Immunogenic peptide; immunogen; HPV; E7 protein; vaccine; infection;
KW gene therapy; exophytic condyloma; flat condyloma; cervical cancer;
KW respiratory papilloma; conjunctival papilloma; cervical dysplasia.
XX
OS Human papillomavirus type 16.
XX
FH Key Location/Qualifiers
FT Misc-difference 1
FT /label= Met, Ala, Ser, Arg, Lys, Gly, Gln, Asp, Glu
FT /note= "Xaa is Ala or Met in peptide of Claim 18"
XX
PN US6183746-B1.
XX
PD 06-FEB-2001.
XX
PF 09-OCT-1998; 98US-00169425.
XX
PR 09-OCT-1997; 97US-0061657P.
XX
PA (ZYCO-) ZYCOS INC.
XX
PI Urban RG, Chicz RM, Collins EJ, Hedley ML;
XX
DR WPI; 2001-190939/19.
XX
PT Inducing an immune response in a mammal for prophylaxis and treatment of
PT human papilloma virus infections such as cervical cancer, comprises
PT administering immunogenic peptides from the papilloma virus type 16 E7
PT protein.
XX
PS Claim 17; Col 32; 23pp; English.
XX
CC The present sequence is that of an immunogenic peptide derived from human
CC papillomavirus (HPV) type 16 E7 protein. The peptide is based on an
CC immunogenic peptide (sse AAB20196), identified in HPV type 16 E7 protein,
CC which contains multiple overlapping class I HLA-binding T-cell epitopes.
CC It can be used to elicit an immune response against HPV E7 protein.
CC Claimed methods for inducing an immune response in a mammal involve
CC administering a nucleic acid coding for a peptide comprising the present
CC sequence, or involve administering a nucleic acid or plasmid encoding a
CC polypeptide comprising a first peptide which controls intracellular
CC trafficking linked to a second peptide comprising the present sequence.
CC The immunogenic peptides and nucleic acids of the invention are used as
CC vaccines prophylactically or therapeutically in subjects having,
CC suspected of having, or at risk of exophytic condyloma, flat condyloma,
CC cervical cancer, respiratory papilloma, conjunctival papilloma, genital-
CC tract HPV infection and cervical dysplasia (claimed)
XX
SQ Sequence 13 AA;

Query Match 100.0%; Score 67; DB 4; Length 13;
Best Local Similarity 100.0%; Pred. No. 0.00044;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LMGTLGIVCPIC 12
||||||||||||
Db 2 LMGTLGIVCPIC 13

RESULT 13
AAB20206
ID AAB20206 standard; peptide; 13 AA.
XX
AC AAB20206;
XX
DT 14-MAY-2001 (first entry)
XX
DE HPV type 16 E7 protein immunogenic peptide used in vaccine.
XX
KW Immunogenic peptide; immunogen; HPV; E7 protein; vaccine; infection;
KW gene therapy; exophytic condyloma; flat condyloma; cervical cancer;
KW respiratory papilloma; conjunctival papilloma; cervical dysplasia.
XX
OS Human papillomavirus type 16.
XX
PN US6183746-B1.
XX
PD 06-FEB-2001.
XX
PF 09-OCT-1998; 98US-00169425.
XX
PR 09-OCT-1997; 97US-0061657P.
XX
PA (ZYCO-) ZYCOS INC.
XX
PI Urban RG, Chicz RM, Collins EJ, Hedley ML;
XX
DR WPI; 2001-190939/19.
XX
PT Inducing an immune response in a mammal for prophylaxis and treatment of

PT human papilloma virus infections such as cervical cancer, comprises
PT administering immunogenic peptides from the papilloma virus type 16 E7
PT protein.
XX
PS Claim 27; Col 32; 23pp; English.
XX
CC The present sequence is that of an immunogenic peptide derived from human
CC papillomavirus (HPV) type 16 E7 protein. The peptide is based on an
CC immunogenic peptide (sse AAB20196), identified in HPV type 16 E7 protein,
CC which contains multiple overlapping class I HLA-binding T-cell epitopes.
CC It can be used to elicit an immune response against HPV E7 protein.
CC Claimed methods for inducing an immune response in a mammal involve
CC administering a nucleic acid coding for a peptide comprising the present
CC sequence, or involve administering a nucleic acid or plasmid encoding a
CC polypeptide comprising a first peptide which controls intracellular
CC trafficking linked to a second peptide comprising the present sequence.
CC The immunogenic peptides and nucleic acids of the invention are used as
CC vaccines prophylactically or therapeutically in subjects having,
CC suspected of having, or at risk of exophytic condyloma, flat condyloma,
CC cervical cancer, respiratory papilloma, conjunctival papilloma, genital-
CC tract HPV infection and cervical dysplasia (claimed)
XX
SQ Sequence 13 AA;

Query Match 100.0%; Score 67; DB 4; Length 13;
Best Local Similarity 100.0%; Pred. No. 0.00044;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LMGTLGIVCPIC 12
||||||||||||
Db 2 LMGTLGIVCPIC 13

RESULT 14
ABU96663
ID ABU96663 standard; peptide; 13 AA.
XX
AC ABU96663;
XX
DT 12-AUG-2003 (first entry)
XX
DE MHC class I overlapping peptide.
XX
KW Microparticle; microsphere; polynucleotide delivery; phagocytic cell;
KW tumour; viral infection; bacterial infection; fungal infection;
KW protozoan infection; gene therapy; major histocompatability complex;
KW MHC class I.
XX
OS Synthetic.
XX
PN US2002182258-A1.
XX
PD 05-DEC-2002.
XX
PF 18-JUL-2001; 2001US-00909460.
XX
PR 22-JAN-1997; 97US-0035983P.
PR 06-JAN-1998; 98US-00003253.
PR 22-JAN-1998; 98WO-US001499.
PR 11-MAR-1999; 99US-00266463.
PR 27-MAY-1999; 99US-00321346.
XX
PA (ZYCO-) ZYCOS INC.
XX
PI Lunsford LB, Putnam D, Hedley ML;
XX
DR WPI; 2003-438782/41.
XX
PT Microparticles, useful as vehicles for delivery of polynucleotides to
PT phagocytic cells, comprises polymeric matrix, lipid, and nucleic acid
PT molecule.
XX
PS Disclosure; Page 6; 37pp; English.
XX
CC The invention relates to a microparticle (microsphere) less than 20
CC microns in diameter that comprises: (1) a polymeric matrix; (2) a lipid;
CC and (3) a nucleic acid molecule. The microparticle is not encapsulated in
CC a liposome and the microparticle does not comprise a cell. The
CC microparticles are used as vehicles for the delivery of polynucleotides
CC into phagocytic cells. The microparticles can be used to express antigens
CC to treat tumour cells or viral, bacterial, fungal or protozoan
CC infections. The microparticles can be made without adversely affecting
CC nucleic acid integrity. The present sequence represents the amino acid
CC sequence of a major histocompatability complex, MHC, class I associated
CC peptide
XX
SQ Sequence 13 AA;

Query Match 100.0%; Score 67; DB 6; Length 13;
Best Local Similarity 100.0%; Pred. No. 0.00044;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LMGTLGIVCPIC 12
||||||||||||
Db 2 LMGTLGIVCPIC 13

RESULT 15
AAO16633
ID AAO16633 standard; peptide; 14 AA.
XX
AC AAO16633;
XX
DT 15-MAY-2003 (first entry)
XX
DE Human papillomavirus E7 antigen-related peptide #3.
XX
KW Epitope; E7 antigen; CD4-positive T cell activation;
KW uterine cancer lesion.
XX
OS Unidentified.
XX
PN WO2002100889-A1.
XX
PD 19-DEC-2002.
XX
PF 10-JUN-2002; 2002WO-JP005747.
XX
PR 08-JUN-2001; 2001JP-00173803.
XX
PA (KIRI) KIRIN BEER KK.
XX
PI Maeda H, Okubo M;
XX
DR WPI; 2003-156946/15.
XX
PT Novel epitope of human papilloma virus E7 antigen capable of activating
PT CD4-positive T cells specific to (pre-)uterine cancer lesion, applicable
PT in drug compositions for preventing and treating uterine cancer.
XX
PS Example 4; Page 19; 40pp; Japanese.
XX
CC The invention comprises an epitope of the human papillomavirus E7 antigen
CC that is capable of activating CD4-positive T cells that are specific to
CC uterine cancer lesions. The epitope of the invention is useful for
CC preventing and treating uterine cancer. The present amino acid sequence
CC represents a peptide that was used in an example of the invention
XX
SQ Sequence 14 AA;

Query Match 100.0%; Score 67; DB 6; Length 14;
Best Local Similarity 100.0%; Pred. No. 0.00047;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LMGTLGIVCPIC 12
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Db 2 LMGTLGIVCPIC 13

Search completed: August 19, 2005, 23:29:44
Job time : 78.8649 secs

GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: August 19, 2005, 23:24:59 ; Search time 12 Seconds
(without alignments)
74.649 Million cell updates/sec

Title: US-10-603-062-16
Perfect score: 67
Sequence: 1 LMGTLGIVCPIC 12

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 513545 seqs, 74649064 residues

Total number of hits satisfying chosen parameters: 513545

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	67	100.0	12	3	US-08-948-378A-16	Sequence 16, Appl
2	67	100.0	12	3	US-09-169-425C-16	Sequence 16, Appl
3	67	100.0	12	4	US-09-759-960-16	Sequence 16, Appl
4	67	100.0	13	3	US-08-948-378A-3	Sequence 3, Appli
5	67	100.0	13	3	US-08-948-378A-4	Sequence 4, Appli
6	67	100.0	13	3	US-08-948-378A-19	Sequence 19, Appl
7	67	100.0	13	3	US-09-169-425C-3	Sequence 3, Appli
8	67	100.0	13	3	US-09-169-425C-4	Sequence 4, Appli
9	67	100.0	13	3	US-09-169-425C-19	Sequence 19, Appl
10	67	100.0	13	4	US-09-759-960-3	Sequence 3, Appli
11	67	100.0	13	4	US-09-759-960-4	Sequence 4, Appli
12	67	100.0	13	4	US-09-759-960-19	Sequence 19, Appl
13	67	100.0	15	3	US-08-159-339A-1168	Sequence 1168, Ap
14	67	100.0	16	3	US-09-169-425C-25	Sequence 25, Appl
15	67	100.0	16	4	US-09-759-960-25	Sequence 25, Appl
16	67	100.0	19	4	US-09-980-523A-18	Sequence 18, Appl
17	67	100.0	20	3	US-08-075-541D-50	Sequence 50, Appl
18	67	100.0	21	2	US-08-934-915-50	Sequence 50, Appl
19	67	100.0	21	2	US-08-934-915-157	Sequence 157, App
20	67	100.0	21	4	US-09-980-177A-76	Sequence 76, Appl
21	67	100.0	26	3	US-08-075-541D-40	Sequence 40, Appl
22	67	100.0	28	4	US-09-486-394-5	Sequence 5, Appli
23	67	100.0	30	2	US-08-934-915-54	Sequence 54, Appl
24	67	100.0	38	3	US-08-948-378A-6	Sequence 6, Appli
25	67	100.0	38	3	US-09-169-425C-6	Sequence 6, Appli
26	67	100.0	38	4	US-09-759-960-6	Sequence 6, Appli
27	67	100.0	98	1	US-08-406-248-6	Sequence 6, Appli
28	67	100.0	98	3	US-08-075-541D-42	Sequence 42, Appl
29	67	100.0	98	3	US-09-382-616A-1	Sequence 1, Appli
30	67	100.0	98	3	US-08-944-368A-4	Sequence 4, Appli
31	67	100.0	98	3	US-09-820-764-4	Sequence 4, Appli
32	67	100.0	98	4	US-09-613-303-8	Sequence 8, Appli
33	67	100.0	98	4	US-09-566-420-19	Sequence 19, Appl
34	67	100.0	98	4	US-09-986-118A-4	Sequence 4, Appli
35	67	100.0	98	4	US-09-728-466-1	Sequence 1, Appli
36	67	100.0	98	4	US-09-824-017-4	Sequence 4, Appli
37	67	100.0	98	4	US-10-267-311-8	Sequence 8, Appli
38	67	100.0	98	4	US-10-201-764-19	Sequence 19, Appl
39	67	100.0	98	4	US-09-637-746-3	Sequence 3, Appli
40	67	100.0	98	4	US-09-501-097A-7	Sequence 7, Appli
41	67	100.0	98	4	US-09-980-523A-12	Sequence 12, Appl
42	67	100.0	121	4	US-09-613-303-12	Sequence 12, Appl
43	67	100.0	121	4	US-10-267-311-12	Sequence 12, Appl
44	67	100.0	172	3	US-08-860-165-14	Sequence 14, Appl
45	67	100.0	172	3	US-09-359-382-14	Sequence 14, Appl

ALIGNMENTS

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RESULT 1
US-08-948-378A-16
; Sequence 16, Application US/08948378A
; Patent No. 6013258
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM
;    TITLE OF INVENTION:  THE HPV E7 PROTEIN
;    NUMBER OF SEQUENCES:  19
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/948,378A
;      FILING DATE:  09-OCT-1997
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  16:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  12 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-08-948-378A-16

  Query Match           100.0%;  Score 67;  DB 3;  Length 12;
  Best Local Similarity  100.0%;  Pred. No. 0.00014;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
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Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          1 LMGTLGIVCPIC 12


RESULT 2
US-09-169-425C-16
; Sequence 16, Application US/09169425C
; Patent No. 6183746
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM THE HPV E7
;    TITLE OF INVENTION:  PROTEIN
;    NUMBER OF SEQUENCES:  33
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/169,425C
;      FILING DATE:  09-OCT-1998
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/061,657
;      FILING DATE:  09-OCT-1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004002
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  16:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  12 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-09-169-425C-16

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  Best Local Similarity   100.0%;  Pred. No. 0.00014;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          1 LMGTLGIVCPIC 12


RESULT 3
US-09-759-960-16
; Sequence 16, Application US/09759960
; Patent No. 6582704
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM THE HPV E7
;    TITLE OF INVENTION:  PROTEIN
;    NUMBER OF SEQUENCES:  33
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/759,960
;      FILING DATE:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  09/169,425
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004002
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  16:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  12 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-09-759-960-16

  Query Match             100.0%;  Score 67;  DB 4;  Length 12;
  Best Local Similarity   100.0%;  Pred. No. 0.00014;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          1 LMGTLGIVCPIC 12


RESULT 4
US-08-948-378A-3
; Sequence 3, Application US/08948378A
; Patent No. 6013258
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM
;    TITLE OF INVENTION:  THE HPV E7 PROTEIN
;    NUMBER OF SEQUENCES:  19
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/948,378A
;      FILING DATE:  09-OCT-1997
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
```

```
;       NAME:  Fraser, Janis K.
;       REGISTRATION NUMBER:  34,819
;       REFERENCE/DOCKET NUMBER:  08191/004001
;     TELECOMMUNICATION INFORMATION:
;       TELEPHONE:  617-542-5070
;       TELEFAX:  617-543-8906
;       TELEX:  200154
;   INFORMATION FOR SEQ ID NO:  3:
;     SEQUENCE CHARACTERISTICS:
;       LENGTH:  13 amino acids
;       TYPE:  amino acid
;       TOPOLOGY:  linear
;     MOLECULE TYPE:  peptide
US-08-948-378A-3

  Query Match             100.0%;  Score 67;  DB 3;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00015;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 5
US-08-948-378A-4
; Sequence 4, Application US/08948378A
; Patent No. 6013258
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM
;    TITLE OF INVENTION:  THE HPV E7 PROTEIN
;    NUMBER OF SEQUENCES:  19
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
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;      APPLICATION NUMBER:  US/08/948,378A
;      FILING DATE:  09-OCT-1997
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
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;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  13 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-08-948-378A-4

  Query Match             100.0%;  Score 67;  DB 3;  Length 13;
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  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 6
US-08-948-378A-19
; Sequence 19, Application US/08948378A
; Patent No. 6013258
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM
;    TITLE OF INVENTION:  THE HPV E7 PROTEIN
;    NUMBER OF SEQUENCES:  19
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/948,378A
;      FILING DATE:  09-OCT-1997
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  19:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  13 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    FEATURE:
;      NAME/KEY:  Coding Sequence
;      LOCATION:  1...1
;      OTHER INFORMATION:  where X at position 1 is Ala, Ser, Arg, Lys,
;      OTHER INFORMATION:  Gly, Gln, Asp, or Glu
US-08-948-378A-19

  Query Match             100.0%;  Score 67;  DB 3;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00015;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 7
US-09-169-425C-3
; Sequence 3, Application US/09169425C
; Patent No. 6183746
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
```

```
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM THE HPV E7
;    TITLE OF INVENTION:  PROTEIN
;    NUMBER OF SEQUENCES:  33
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/169,425C
;      FILING DATE:  09-OCT-1998
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/061,657
;      FILING DATE:  09-OCT-1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004002
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  13 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-09-169-425C-3

  Query Match             100.0%;  Score 67;  DB 3;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00015;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 8
US-09-169-425C-4
; Sequence 4, Application US/09169425C
; Patent No. 6183746
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM THE HPV E7
;    TITLE OF INVENTION:  PROTEIN
;    NUMBER OF SEQUENCES:  33
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/169,425C
;      FILING DATE:  09-OCT-1998
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/061,657
;      FILING DATE:  09-OCT-1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004002
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  13 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-09-169-425C-4

  Query Match             100.0%;  Score 67;  DB 3;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00015;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 9
US-09-169-425C-19
; Sequence 19, Application US/09169425C
; Patent No. 6183746
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM THE HPV E7
;    TITLE OF INVENTION:  PROTEIN
;    NUMBER OF SEQUENCES:  33
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/169,425C
;      FILING DATE:  09-OCT-1998
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/061,657
;      FILING DATE:  09-OCT-1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004002
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  19:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  13 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
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;    MOLECULE TYPE:  peptide
;    FEATURE:
;      NAME/KEY:  Other
;      LOCATION:  1...1
;      OTHER INFORMATION:  where Xaa at position 1 is Met, Ala, Ser,
;      OTHER INFORMATION:  Arg, Lys, Gly, Gln, Asp, or Glu
US-09-169-425C-19

  Query Match             100.0%;  Score 67;  DB 3;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00015;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 10
US-09-759-960-3
; Sequence 3, Application US/09759960
; Patent No. 6582704
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM THE HPV E7
;    TITLE OF INVENTION:  PROTEIN
;    NUMBER OF SEQUENCES:  33
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/759,960
;      FILING DATE:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  09/169,425
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004002
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  13 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-09-759-960-3

  Query Match             100.0%;  Score 67;  DB 4;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00015;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 11
US-09-759-960-4
; Sequence 4, Application US/09759960
; Patent No. 6582704
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM THE HPV E7
;    TITLE OF INVENTION:  PROTEIN
;    NUMBER OF SEQUENCES:  33
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/759,960
;      FILING DATE:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  09/169,425
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004002
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  13 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-09-759-960-4

  Query Match             100.0%;  Score 67;  DB 4;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00015;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 12
US-09-759-960-19
; Sequence 19, Application US/09759960
; Patent No. 6582704
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM THE HPV E7
;    TITLE OF INVENTION:  PROTEIN
;    NUMBER OF SEQUENCES:  33
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
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;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/759,960
;      FILING DATE:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  09/169,425
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004002
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  19:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  13 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    FEATURE:
;      NAME/KEY:  Other
;      LOCATION:  1...1
;      OTHER INFORMATION:  where Xaa at position 1 is Met, Ala, Ser,
;      OTHER INFORMATION:  Arg, Lys, Gly, Gln, Asp, or Glu
US-09-759-960-19

  Query Match             100.0%;  Score 67;  DB 4;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00015;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 13
US-08-159-339A-1168
; Sequence 1168, Application US/08159339A
; Patent No. 6037135
;  GENERAL INFORMATION:
;    APPLICANT:  Kubo, Ralph T.
;    APPLICANT:  Grey, Howard M.
;    APPLICANT:  Sette, Alessandro
;    APPLICANT:  Celis, Esteban
;    TITLE OF INVENTION:  HLA Binding peptides and Their
;    TITLE OF INVENTION:  Uses
;    NUMBER OF SEQUENCES:  1254
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Townsend and Townsend and Crew LLP
;      STREET:  Two Embarcadero Center, Eighth Floor
;      CITY:  San Francisco
;      STATE:  CA
;      COUNTRY:  USA
;      ZIP:  94111-3834
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  DOS
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/159,339A
;      FILING DATE:  29-NOV-1993
;      CLASSIFICATION:  424
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 07/926,666
;      FILING DATE:  07-AUG-1992
;      APPLICATION NUMBER:  US 08/027,746
;      FILING DATE:  05-MAR-1993
;      APPLICATION NUMBER:  US 08/103,396
;      FILING DATE:  06-AUG-1993
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Weber, Ellen Lauver
;      REGISTRATION NUMBER:  32,762
;      REFERENCE/DOCKET NUMBER:  018623-005030US
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (415) 576-0200
;      TELEFAX:  (415) 576-0300
;      TELEX:
;  INFORMATION FOR SEQ ID NO:  1168:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  15 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-08-159-339A-1168

  Query Match             100.0%;  Score 67;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 0.00017;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          1 LMGTLGIVCPIC 12


RESULT 14
US-09-169-425C-25
; Sequence 25, Application US/09169425C
; Patent No. 6183746
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM THE HPV E7
;    TITLE OF INVENTION:  PROTEIN
;    NUMBER OF SEQUENCES:  33
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/169,425C
;      FILING DATE:  09-OCT-1998
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  60/061,657
;      FILING DATE:  09-OCT-1997
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004002
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  25:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  16 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
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US-09-169-425C-25

Query Match 100.0%; Score 67; DB 3; Length 16;
Best Local Similarity 100.0%; Pred. No. 0.00018;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LMGTLGIVCPIC 12
||||||||||||
Db 2 LMGTLGIVCPIC 13

RESULT 15
US-09-759-960-25
; Sequence 25, Application US/09759960
; Patent No. 6582704
; GENERAL INFORMATION:
; APPLICANT: Urban, Robert G.
; APPLICANT: Chicz, Roman M.
; APPLICANT: Collins, Edward J.
; APPLICANT: Hedley, Mary Lynn
; TITLE OF INVENTION: IMMUNOGENIC PEPTIDES FROM THE HPV E7
; TITLE OF INVENTION: PROTEIN
; NUMBER OF SEQUENCES: 33
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Fish & Richardson, P.C.
; STREET: 225 Franklin Street
; CITY: Boston
; STATE: MA
; COUNTRY: US
; ZIP: 02110-2804
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette
; COMPUTER: IBM Compatible
; OPERATING SYSTEM: Windows95
; SOFTWARE: FastSEQ for Windows Version 2.0
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/759,960
; FILING DATE:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 09/169,425
; FILING DATE:
; ATTORNEY/AGENT INFORMATION:
; NAME: Fraser, Janis K.
; REGISTRATION NUMBER: 34,819
; REFERENCE/DOCKET NUMBER: 08191/004002
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 617-542-5070
; TELEFAX: 617-543-8906
; TELEX: 200154
; INFORMATION FOR SEQ ID NO: 25:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 16 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-09-759-960-25

Query Match 100.0%; Score 67; DB 4; Length 16;
Best Local Similarity 100.0%; Pred. No. 0.00018;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 LMGTLGIVCPIC 12
||||||||||||
Db 2 LMGTLGIVCPIC 13

Search completed: August 19, 2005, 23:35:15
Job time : 13 secs

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GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: August 19, 2005, 23:22:13 ; Search time 15.5676 Seconds
(without alignments)
74.167 Million cell updates/sec

Title: US-10-603-062-16
Perfect score: 67
Sequence: 1 LMGTLGIVCPIC 12

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283416 seqs, 96216763 residues

Total number of hits satisfying chosen parameters: 283416

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR_79:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	67	100.0	98	1	W7WLHS	E7 protein - human
2	58	86.6	98	1	W7WL11	E7 protein - human
3	58	86.6	98	1	W7WL6	E7 protein - human
4	56	83.6	101	1	W7WL13	E7 protein - human
5	55	82.1	93	1	W7WL42	E7 protein - human
6	55	82.1	99	1	W7WL35	E7 protein - human
7	55	82.1	104	2	S36510	E7 protein - human
8	54	80.6	111	2	S36585	E7 protein - human
9	54	80.6	113	1	W7WLR1	E7 protein - rhesu
10	53	79.1	55	2	S19907	E7-C protein - hum
11	53	79.1	97	1	W7WL33	E7 protein - human
12	52	77.6	98	1	W7WLC1	E7 protein - pygmy
13	52	77.6	98	1	W7WL31	E7 protein - human
14	52	77.6	105	2	S36528	E7 protein - human
15	52	77.6	111	2	S36556	E7 protein - human
16	52	77.6	336	2	A86406	probable RING zinc
17	50	74.6	105	2	S36504	E7 protein - human
18	48	71.6	98	1	W7WL58	E7 protein - human
19	48	71.6	101	1	W7WL51	E7 protein - human
20	47	70.1	86	2	S36533	E7 protein - human
21	47	70.1	97	2	S36516	E7 protein - human
22	47	70.1	99	2	S36574	E7 protein - human
23	47	70.1	105	2	B44890	E7 protein - human
24	47	70.1	105	2	S36580	E7 protein - human
25	44	65.7	93	1	W7WL	E7 protein - human
26	44	65.7	449	2	B86763	hypothetical prote
27	41	61.2	74	2	B89996	conserved hypothet
28	41	61.2	109	1	W7WL39	E7 protein - human
29	40.5	60.4	164	1	S22196	MJ0653 homolog - D
30	40	59.7	125	2	A90694	probable gene 58 [
31	40	59.7	125	2	C64777	probable membrane
32	40	59.7	125	2	E85544	probable gene 58 p
33	40	59.7	183	2	B86622	hypothetical prote
34	40	59.7	183	2	D72003	hypothetical prote
35	40	59.7	301	1	E70415	conserved hypothet
36	40	59.7	1006	2	S74992	hypothetical prote
37	39	58.2	92	1	S15622	E7 protein - human
38	39	58.2	93	2	S36591	E7 protein - human
39	39	58.2	113	2	F86610	CT809 hypothetical
40	39	58.2	113	2	C81525	conserved hypothet
41	39	58.2	113	2	E72013	CT809 hypothetical
42	39	58.2	125	2	AE0562	probable membrane
43	39	58.2	197	2	B71106	hypothetical prote
44	39	58.2	299	2	T32094	hypothetical prote
45	39	58.2	425	2	A64165	conserved hypothet

ALIGNMENTS

RESULT 1
W7WLHS
E7 protein - human papillomavirus type 16
C;Species: human papillomavirus type 16
C;Date: 28-May-1986 #sequence_revision 28-May-1986 #text_change 09-Jul-2004
C;Accession: A03688; S12367; T10428
R;Seedorf, K.; Krammer, G.; Durst, M.; Suhai, S.; Rowekamp, W.G.
Virology 145, 181-185, 1985
A;Title: Human papillomavirus type 16 DNA sequence.
A;Reference number: A22355; MUID:85246220; PMID:2990099
A;Accession: A03688
A;Molecule type: DNA
A;Residues: 1-98 <SEE>
A;Cross-references: UNIPROT:P03129; GB:K02718; NID:g333031; PIDN:AAA46940.1; PID:g333033
R;Barbosa, M.S.; Edmonds, C.; Fisher, C.; Schiller, J.T.; Lowy, D.R.; Vousden, K.H.
EMBO J. 9, 153-160, 1990
A;Title: The region of the HPV E7 oncoprotein homologous to adenovirus E1a and SV40 larg
A;Reference number: S12367; MUID:90107938; PMID:2153075
A;Accession: S12367
A;Status: preliminary
A;Molecule type: protein
A;Residues: 1-98 <BAR>
R;Kennedy, I.M.; Haddow, J.K.; Clements, J.B.
J. Virol. 65, 2093-2097, 1991
A;Title: A negative element in the human poapillomavirus type 16 genome acts at the leve
A;Reference number: Z17014; MUID:91162763; PMID:1848319
A;Accession: T10428
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-98 <KEN>
A;Cross-references: EMBL:K02718; NID:g333031; PIDN:AAA46940.1; PID:g333033
C;Genetics:
A;Gene: E7
C;Superfamily: papillomavirus E7 protein
C;Keywords: DNA binding; early protein; transcription regulation; zinc finger
F;58-94/Region: zinc finger CCCC motif

Query Match 100.0%; Score 67; DB 1; Length 98;
Best Local Similarity 100.0%; Pred. No. 0.0011;
Matches 12; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db         83 LMGTLGIVCPIC 94
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RESULT 2
W7WL11
E7 protein - human papillomavirus type 11
C;Species: human papillomavirus type 11
C;Date: 13-Aug-1986 #sequence_revision 13-Aug-1986 #text_change 09-Jul-2004
C;Accession: A03690

```
R;Dartmann, K.; Schwarz, E.; Gissmann, L.; zur Hausen, H.
Virology 151, 124-130, 1986
A;Title: The nucleotide sequence and genome organization of human papilloma virus type 1
A;Reference number: A94338; MUID:86181601; PMID:3008427
A;Accession: A03690
A;Molecule type: DNA
A;Residues: 1-98 <DAR>
A;Cross-references: UNIPROT:P04020; GB:M14119; NID:g333026; PIDN:AAA46928.1; PID:g496194
C;Superfamily: papillomavirus E7 protein
C;Keywords: DNA binding; early protein; transcription regulation; zinc finger
F;58-94/Region: zinc finger CCCC motif

  Query Match             86.6%;  Score 58;  DB 1;  Length 98;
  Best Local Similarity   83.3%;  Pred. No. 0.029;
  Matches   10;  Conservative    1;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              |:||| ||||||
Db         83 LLGTLNIVCPIC 94


RESULT 3
W7WL6
E7 protein - human papillomavirus type 6b
C;Species: human papillomavirus type 6b
C;Date: 30-Sep-1987 #sequence_revision 30-Sep-1987 #text_change 09-Jul-2004
C;Accession: D20558
R;Schwarz, E.; Durst, M.; Demankowski, C.; Lattermann, O.; Zech, R.; Wolfsperger, E.; Su
EMBO J. 2, 2341-2348, 1983
A;Title: DNA sequence and genome organization of genital human papillomavirus type 6b.
A;Reference number: A90975; MUID:84131949; PMID:6321162
A;Accession: D20558
A;Molecule type: DNA
A;Residues: 1-98 <SCH>
A;Cross-references: UNIPROT:P06464; GB:X00203; NID:g60955; PIDN:CAA25019.1; PID:g60957
C;Superfamily: papillomavirus E7 protein
C;Keywords: DNA binding; early protein; transcription regulation; zinc finger
F;58-94/Region: zinc finger CCCC motif

  Query Match             86.6%;  Score 58;  DB 1;  Length 98;
  Best Local Similarity   83.3%;  Pred. No. 0.029;
  Matches   10;  Conservative    1;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              |:||| ||||||
Db         83 LLGTLNIVCPIC 94


RESULT 4
W7WL13
E7 protein - human papillomavirus type 13
C;Species: human papillomavirus type 13
A;Note: host Homo sapiens (man)
C;Date: 30-Jun-1993 #sequence_revision 30-Jun-1993 #text_change 09-Jul-2004
C;Accession: B42955
R;van Ranst, M.; Fuse, A.; Fiten, P.; Beuken, E.; Pfister, H.; Burk, R.D.; Opdenakker, G
Virology 190, 587-596, 1992
A;Title: Human papillomavirus type 13 and pygmy chimpanzee papillomavirus type 1: Compar
A;Reference number: A42955; MUID:92391075; PMID:1325697
A;Accession: B42955
A;Molecule type: DNA
A;Residues: 1-101 <VAN>
A;Cross-references: UNIPROT:Q02271; EMBL:X62843; NID:g60295; PIDN:CAA44648.1; PID:g60297
C;Superfamily: papillomavirus E7 protein
C;Keywords: DNA binding; early protein; transcription regulation; zinc finger
F;61-97/Region: zinc finger CCCC motif

  Query Match             83.6%;  Score 56;  DB 1;  Length 101;
  Best Local Similarity   75.0%;  Pred. No. 0.061;
  Matches    9;  Conservative    2;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              |:||| ||||:|
Db         86 LLGTLNIVCPLC 97


RESULT 5
W7WL42
E7 protein - human papillomavirus type 42
C;Species: human papillomavirus type 42
A;Note: host Homo sapiens (man)
C;Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 09-Jul-2004
C;Accession: F39451
R;Philipp, W.; Honore, N.; Sapp, M.; Cole, S.T.; Streeck, R.E.
Virology 186, 331-334, 1992
A;Title: Human papillomavirus type 42: new sequence, conserved genome organization.
A;Reference number: A39451; MUID:92087479; PMID:1309278
A;Accession: F39451
A;Status: translation not shown
A;Molecule type: DNA
A;Residues: 1-93 <PHI>
A;Cross-references: UNIPROT:P27231; GB:M73236
C;Superfamily: papillomavirus E7 protein
C;Keywords: DNA binding; early protein; transcription regulation

  Query Match             82.1%;  Score 55;  DB 1;  Length 93;
  Best Local Similarity   75.0%;  Pred. No. 0.082;
  Matches    9;  Conservative    2;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              |:||| ||||:|
Db         78 LLGTLDIVCPLC 89


RESULT 6
W7WL35
E7 protein - human papillomavirus type 35
C;Species: human papillomavirus type 35
A;Note: host Homo sapiens (man)
C;Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 09-Jul-2004
C;Accession: F40824; S36522
R;Marich, J.E.; Pontsler, A.V.; Rice, S.M.; McGraw, K.A.; Dubensky, T.W.
Virology 186, 770-776, 1992
A;Title: The phylogenetic relationship and complete nucleotide sequence of human papillom
A;Reference number: A40824; MUID:92124753; PMID:1310198
A;Accession: F40824
A;Status: translation not shown
A;Molecule type: DNA
A;Residues: 1-99 <MAR>
A;Cross-references: UNIPROT:P27230; GB:M74117; NID:g333050; PIDN:AAA46967.1; PID:g333052
R;Delius, H.; Hofmann, B.
submitted to the EMBL Data Library, August 1993
A;Description: Primer-directed sequencing of human papillomavirus types.
A;Reference number: S36469
A;Accession: S36522
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-99 <DEL>
A;Cross-references: EMBL:X74477; NID:g396997; PIDN:CAA52562.1; PID:g396999
A;Experimental source: strain 35H
C;Superfamily: papillomavirus E7 protein
C;Keywords: DNA binding; early protein; transcription regulation; zinc finger
F;59-95/Region: zinc finger CCCC motif

  Query Match             82.1%;  Score 55;  DB 1;  Length 99;
  Best Local Similarity   83.3%;  Pred. No. 0.086;
  Matches   10;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              |||| ||||| |
Db         84 LMGTFGIVCPGC 95


RESULT 7
S36510
E7 protein - human papillomavirus type 32
```

```
C;Species: human papillomavirus type 32
C;Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 09-Jul-2004
C;Accession: S36510
R;Delius, H.; Hofmann, B.
submitted to the EMBL Data Library, August 1993
A;Description: Primer-directed sequencing of human papillomavirus types.
A;Reference number: S36469
A;Accession: S36510
A;Molecule type: DNA
A;Residues: 1-104 <DEL>
A;Cross-references: UNIPROT:P36827; EMBL:X74475; NID:g396981; PIDN:CAA52550.1; PID:g3969
C;Superfamily: papillomavirus E7 protein
C;Keywords: DNA binding; early protein; transcription regulation

  Query Match             82.1%;  Score 55;  DB 2;  Length 104;
  Best Local Similarity   75.0%;  Pred. No. 0.09;
  Matches    9;  Conservative    2;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              |: |||||||:|
Db         89 LLDTLGIVCPLC 100


RESULT 8
S36585
E7 protein - human papillomavirus type 7
C;Species: human papillomavirus type 7
C;Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 09-Jul-2004
C;Accession: S36585
R;Delius, H.; Hofmann, B.
submitted to the EMBL Data Library, August 1993
A;Description: Primer-directed sequencing of human papillomavirus types.
A;Reference number: S36469
A;Accession: S36585
A;Molecule type: DNA
A;Residues: 1-111 <DEL>
A;Cross-references: UNIPROT:P36816; EMBL:X74463; NID:g397060; PIDN:CAA52477.1; PID:g3970
C;Superfamily: papillomavirus E7 protein
C;Keywords: DNA binding; early protein; transcription regulation

  Query Match             80.6%;  Score 54;  DB 2;  Length 111;
  Best Local Similarity   83.3%;  Pred. No. 0.14;
  Matches   10;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||| |||| |
Db         96 LMGTLNIVCPNC 107


RESULT 9
W7WLR1
E7 protein - rhesus papillomavirus (type 1)
C;Species: rhesus papillomavirus
C;Date: 31-Dec-1991 #sequence_revision 31-Dec-1991 #text_change 09-Jul-2004
C;Accession: B38503
R;Ostrow, R.S.; LaBresh, K.V.; Faras, A.J.
Virology 181, 424-429, 1991
A;Title: Characterization of the complete RhPV 1 genomic sequence and an integration loc
A;Reference number: A38503; MUID:91135018; PMID:1847267
A;Accession: B38503
A;Status: translation not shown
A;Molecule type: DNA
A;Residues: 1-113 <OST>
A;Cross-references: UNIPROT:P22161; EMBL:M37717
C;Superfamily: papillomavirus E7 protein
C;Keywords: DNA binding; early protein; transcription regulation

  Query Match             80.6%;  Score 54;  DB 1;  Length 113;
  Best Local Similarity   83.3%;  Pred. No. 0.14;
  Matches   10;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||| |||| |
Db         98 LMGTLDIVCPSC 109


RESULT 10
S19907
E7-C protein - human papillomavirus type 33
C;Species: human papillomavirus type 33
C;Date: 30-Jun-1992 #sequence_revision 30-Jun-1992 #text_change 09-Jul-2004
C;Accession: S19907
R;Snijders, P.J.F.; van den Brule, A.J.C.; Schrijnemakers, H.F.J.; Raaphorst, P.M.C.; Me
submitted to the EMBL Data Library, January 1992
A;Description: HPV type 33 in a tonsillar carcinoma generates its putative E7 mRNA via t
A;Reference number: S19906
A;Accession: S19907
A;Molecule type: mRNA
A;Residues: 1-55 <SNI>
A;Cross-references: UNIPROT:Q81886; EMBL:X64086; NID:g60282; PIDN:CAA45436.1; PID:g60284
C;Superfamily: papillomavirus E7 protein
C;Keywords: early protein

  Query Match             79.1%;  Score 53;  DB 2;  Length 55;
  Best Local Similarity   75.0%;  Pred. No. 0.11;
  Matches    9;  Conservative    1;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||: |||| |
Db         41 LMGTVNIVCPTC 52


RESULT 11
W7WL33
E7 protein - human papillomavirus type 33
C;Species: human papillomavirus type 33
C;Date: 30-Jun-1987 #sequence_revision 30-Jun-1987 #text_change 09-Jul-2004
C;Accession: A03689; S23831; S23827
R;Cole, S.T.; Streeck, R.E.
J. Virol. 58, 991-995, 1986
A;Title: Genome organization and nucleotide sequence of human papillomavirus type 33, wh
A;Reference number: A93020; MUID:86200464; PMID:3009902
A;Accession: A03689
A;Molecule type: DNA
A;Residues: 1-97 <COL>
A;Cross-references: UNIPROT:P06429; GB:M12732; NID:g333049; PIDN:AAA46959.1; PID:g463178
R;Snijders, P.J.F.; van den Brule, A.J.C.; Schrijnemakers, H.F.J.; Raaphorst, P.M.C.; Me
submitted to the EMBL Data Library, January 1992
A;Description: HPV type 33 in a tonsillar carcinoma generates its putative E7 mRNA via t
A;Reference number: S19906
A;Accession: S23831
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-97 <SNI>
A;Cross-references: EMBL:X64085; NID:g60278; PIDN:CAA45434.1; PID:g60281; EMBL:X64084; N
C;Superfamily: papillomavirus E7 protein
C;Keywords: DNA binding; early protein; transcription regulation; zinc finger
F;58-94/Region: zinc finger CCCC motif

  Query Match             79.1%;  Score 53;  DB 1;  Length 97;
  Best Local Similarity   75.0%;  Pred. No. 0.18;
  Matches    9;  Conservative    1;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||: |||| |
Db         83 LMGTVNIVCPTC 94


RESULT 12
W7WLC1
E7 protein - pygmy chimpanzee papillomavirus (type 1)
C;Species: pygmy chimpanzee papillomavirus
C;Date: 30-Jun-1993 #sequence_revision 30-Jun-1993 #text_change 16-Jul-1999
C;Accession: B36818
R;van Ranst, M.; Fuse, A.; Fiten, P.; Beuken, E.; Pfister, H.; Burk, R.D.; Opdenakker, G
Virology 190, 587-596, 1992
```

```
A;Title: Human papillomavirus type 13 and pygmy chimpanzee papillomavirus type 1: Compar
A;Reference number: A42955; MUID:92391075; PMID:1325697
A;Accession: B36818
A;Molecule type: DNA
A;Residues: 1-98 <VAN>
A;Cross-references: EMBL:X62844; NID:g61010; PIDN:CAA44656.1; PID:g61012
C;Superfamily: papillomavirus E7 protein
C;Keywords: DNA binding; early protein; transcription regulation; transforming protein;
F;58-94/Region: zinc finger CCCC motif

  Query Match             77.6%;  Score 52;  DB 1;  Length 98;
  Best Local Similarity   66.7%;  Pred. No. 0.25;
  Matches    8;  Conservative    3;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              |:|:| ||||:|
Db         83 LLGSLNIVCPLC 94


RESULT 13
W7WL31
E7 protein - human papillomavirus type 31
C;Species: human papillomavirus type 31
A;Note: host Homo sapiens (man)
C;Date: 31-Mar-1990 #sequence_revision 31-Mar-1990 #text_change 09-Jul-2004
C;Accession: B32444
R;Goldsborough, M.D.; DiSilvestre, D.; Temple, G.F.; Lorincz, A.T.
Virology 171, 306-311, 1989
A;Title: Nucleotide sequence of human papillomavirus type 31: a cervical neoplasia-assoc
A;Reference number: A94398; MUID:89299478; PMID:2545036
A;Accession: B32444
A;Status: translation not shown
A;Molecule type: DNA
A;Residues: 1-98 <GOL>
A;Cross-references: UNIPROT:P17387; GB:J04353; NID:g333048; PIDN:AAA46951.1; PID:g459917
C;Comment: This protein may be involved in the oncogenic potential of this virus.
C;Superfamily: papillomavirus E7 protein
C;Keywords: DNA binding; early protein; transcription regulation; zinc finger
F;58-94/Region: zinc finger CCCC motif

  Query Match             77.6%;  Score 52;  DB 1;  Length 98;
  Best Local Similarity   75.0%;  Pred. No. 0.25;
  Matches    9;  Conservative    1;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              |||: ||||| |
Db         83 LMGSFGIVCPNC 94


RESULT 14
S36528
E7 protein - human papillomavirus type 53
C;Species: human papillomavirus type 53
C;Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 09-Jul-2004
C;Accession: S36528
R;Delius, H.; Hofmann, B.
submitted to the EMBL Data Library, August 1993
A;Description: Primer-directed sequencing of human papillomavirus types.
A;Reference number: S36469
A;Accession: S36528
A;Molecule type: DNA
A;Residues: 1-105 <DEL>
A;Cross-references: UNIPROT:P36832; EMBL:X74482; NID:g397046; PIDN:CAA52592.1; PID:g3970
C;Superfamily: papillomavirus E7 protein
C;Keywords: DNA binding; early protein; transcription regulation

  Query Match             77.6%;  Score 52;  DB 2;  Length 105;
  Best Local Similarity   66.7%;  Pred. No. 0.27;
  Matches    8;  Conservative    3;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||: :|||:|
Db         90 LMGTVELVCPLC 101


RESULT 15
S36556
E7 protein - human papillomavirus type 40
C;Species: human papillomavirus type 40
C;Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 09-Jul-2004
C;Accession: S36556
R;Delius, H.; Hofmann, B.
submitted to the EMBL Data Library, August 1993
A;Description: Primer-directed sequencing of human papillomavirus types.
A;Reference number: S36469
A;Accession: S36556
A;Molecule type: DNA
A;Residues: 1-111 <DEL>
A;Cross-references: UNIPROT:P36829; EMBL:X74478; NID:g397014; PIDN:CAA52568.1; PID:g3970
C;Superfamily: papillomavirus E7 protein
C;Keywords: DNA binding; early protein; transcription regulation

  Query Match             77.6%;  Score 52;  DB 2;  Length 111;
  Best Local Similarity   83.3%;  Pred. No. 0.28;
  Matches   10;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||| |||| |
Db         96 LMGTLHIVCPNC 107


Search completed: August 19, 2005, 23:34:32
Job time : 16.5676 secs
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GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: August 19, 2005, 23:33:49 ; Search time 69.4054 Seconds
(without alignments)
67.704 Million cell updates/sec

Title: US-10-603-062-16
Perfect score: 67
Sequence: 1 LMGTLGIVCPIC 12

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1759131 seqs, 391586102 residues

Total number of hits satisfying chosen parameters: 1759131

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Published_Applications_AA:*
1: /cgn2_6/ptodata/2/pubpaa/US07_PUBCOMB.pep:*
2: /cgn2_6/ptodata/2/pubpaa/PCT_NEW_PUB.pep:*
3: /cgn2_6/ptodata/2/pubpaa/US06_NEW_PUB.pep:*
4: /cgn2_6/ptodata/2/pubpaa/US06_PUBCOMB.pep:*
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8: /cgn2_6/ptodata/2/pubpaa/US08_PUBCOMB.pep:*
9: /cgn2_6/ptodata/2/pubpaa/US09A_PUBCOMB.pep:*
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12: /cgn2_6/ptodata/2/pubpaa/US09_NEW_PUB.pep:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	67	100.0	12	9	US-09-759-960-16	Sequence 16, Appl
2	67	100.0	12	16	US-10-603-062-16	Sequence 16, Appl
3	67	100.0	13	9	US-09-759-960-3	Sequence 3, Appli
4	67	100.0	13	9	US-09-759-960-4	Sequence 4, Appli
5	67	100.0	13	9	US-09-759-960-19	Sequence 19, Appl
6	67	100.0	13	9	US-09-909-460-110	Sequence 110, App
7	67	100.0	13	11	US-09-872-836-110	Sequence 110, App
8	67	100.0	13	16	US-10-603-062-3	Sequence 3, Appli
9	67	100.0	13	16	US-10-603-062-4	Sequence 4, Appli
10	67	100.0	13	16	US-10-603-062-19	Sequence 19, Appl
11	67	100.0	15	16	US-10-306-541-84	Sequence 84, Appl
12	67	100.0	15	18	US-10-648-547-84	Sequence 84, Appl
13	67	100.0	16	9	US-09-759-960-25	Sequence 25, Appl
14	67	100.0	16	9	US-09-909-460-109	Sequence 109, App
15	67	100.0	16	11	US-09-872-836-109	Sequence 109, App
16	67	100.0	16	16	US-10-603-062-25	Sequence 25, Appl
17	67	100.0	16	17	US-10-758-970-109	Sequence 109, App
18	67	100.0	17	17	US-10-751-845-69	Sequence 69, Appl
19	67	100.0	19	16	US-10-476-570-58	Sequence 58, Appl
20	67	100.0	19	17	US-10-858-384-18	Sequence 18, Appl
21	67	100.0	20	17	US-10-484-063-19	Sequence 19, Appl
22	67	100.0	21	15	US-10-432-465-51	Sequence 51, Appl
23	67	100.0	21	16	US-10-476-570-18	Sequence 18, Appl
24	67	100.0	21	16	US-10-890-526-76	Sequence 76, Appl
25	67	100.0	38	9	US-09-759-960-6	Sequence 6, Appli
26	67	100.0	38	16	US-10-603-062-6	Sequence 6, Appli
27	67	100.0	98	9	US-09-728-466-1	Sequence 1, Appli
28	67	100.0	98	9	US-09-820-765-4	Sequence 4, Appli
29	67	100.0	98	9	US-09-824-017-4	Sequence 4, Appli
30	67	100.0	98	10	US-09-986-118A-4	Sequence 4, Appli
31	67	100.0	98	14	US-10-267-311-8	Sequence 8, Appli
32	67	100.0	98	14	US-10-177-390-8	Sequence 8, Appli
33	67	100.0	98	14	US-10-201-764-19	Sequence 19, Appl
34	67	100.0	98	15	US-10-392-113-29	Sequence 29, Appl
35	67	100.0	98	15	US-10-654-129-4	Sequence 4, Appli
36	67	100.0	98	15	US-10-681-410-19	Sequence 19, Appl
37	67	100.0	98	16	US-10-772-988-3	Sequence 3, Appli
38	67	100.0	98	16	US-10-479-541-5	Sequence 5, Appli
39	67	100.0	98	17	US-10-042-526A-4	Sequence 4, Appli
40	67	100.0	98	17	US-10-657-399-1	Sequence 1, Appli
41	67	100.0	98	17	US-10-858-384-12	Sequence 12, Appl
42	67	100.0	98	17	US-10-484-063-26	Sequence 26, Appl
43	67	100.0	98	17	US-10-343-448-5	Sequence 5, Appli
44	67	100.0	98	17	US-10-679-956-8	Sequence 8, Appli
45	67	100.0	98	17	US-10-367-057-17	Sequence 17, Appl

ALIGNMENTS

```
RESULT 1
US-09-759-960-16
; Sequence 16, Application US/09759960
; Patent No. US20010006639A1
; GENERAL INFORMATION:
;   APPLICANT:  Urban, Robert G.
;   APPLICANT:  Chicz, Roman M.
;   APPLICANT:  Collins, Edward J.
;   APPLICANT:  Hedley, Mary Lynn
;   TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM THE HPV E7
;   TITLE OF INVENTION:  PROTEIN
;   NUMBER OF SEQUENCES:  33
;   CORRESPONDENCE ADDRESS:
;     ADDRESSEE:  Fish & Richardson, P.C.
;     STREET:  225 Franklin Street
;     CITY:  Boston
;     STATE:  MA
;     COUNTRY:  US
;     ZIP:  02110-2804
;   COMPUTER READABLE FORM:
;     MEDIUM TYPE:  Diskette
;     COMPUTER:  IBM Compatible
;     OPERATING SYSTEM:  Windows95
;     SOFTWARE:  FastSEQ for Windows Version 2.0
;   CURRENT APPLICATION DATA:
;     APPLICATION NUMBER:  US/09/759,960
;     FILING DATE:
;   PRIOR APPLICATION DATA:
;     APPLICATION NUMBER:  09/169,425
;     FILING DATE:
;   ATTORNEY/AGENT INFORMATION:
;     NAME:  Fraser, Janis K.
;     REGISTRATION NUMBER:  34,819
;     REFERENCE/DOCKET NUMBER:  08191/004002
```

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;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  16:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  12 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-09-759-960-16

  Query Match             100.0%;  Score 67;  DB 9;  Length 12;
  Best Local Similarity   100.0%;  Pred. No. 0.00051;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          1 LMGTLGIVCPIC 12


RESULT 2
US-10-603-062-16
; Sequence 16, Application US/10603062
; Publication No. US20040229809A1
;   GENERAL INFORMATION:
;        APPLICANT: Urban, Robert G.
;                   Chicz, Roman M.
;                   Collins, Edward J.
;                   Hedley, Mary Lynn
;        TITLE OF INVENTION: IMMUNOGENIC PEPTIDES FROM THE HPV E7
;                            PROTEIN
;        NUMBER OF SEQUENCES: 33
;        CORRESPONDENCE ADDRESS:
;             ADDRESSEE: Fish & Richardson, P.C.
;             STREET: 225 Franklin Street
;             CITY: Boston
;             STATE: MA
;             COUNTRY: US
;             ZIP: 02110-2804
;        COMPUTER READABLE FORM:
;             MEDIUM TYPE: Diskette
;             COMPUTER: IBM Compatible
;             OPERATING SYSTEM: Windows95
;             SOFTWARE: FastSEQ for Windows Version 2.0
;        CURRENT APPLICATION DATA:
;             APPLICATION NUMBER: US/10/603,062
;             FILING DATE: 24-Jun-2003
;        PRIOR APPLICATION DATA:
;             APPLICATION NUMBER: US/09/169,425C
;             FILING DATE: 09-OCT-1998
;             APPLICATION NUMBER: 60/061,657
;             FILING DATE: 09-OCT-1997
;        ATTORNEY/AGENT INFORMATION:
;             NAME: Fraser, Janis K.
;             REGISTRATION NUMBER: 34,819
;             REFERENCE/DOCKET NUMBER: 08191/004002
;        TELECOMMUNICATION INFORMATION:
;             TELEPHONE: 617-542-5070
;             TELEFAX: 617-543-8906
;             TELEX: 200154
;   INFORMATION FOR SEQ ID NO: 16:
;        SEQUENCE CHARACTERISTICS:
;             LENGTH: 12 amino acids
;             TYPE: amino acid
;             TOPOLOGY: linear
;        MOLECULE TYPE: peptide
;        SEQUENCE DESCRIPTION: SEQ ID NO: 16:
US-10-603-062-16

  Query Match             100.0%;  Score 67;  DB 16;  Length 12;
  Best Local Similarity   100.0%;  Pred. No. 0.00051;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          1 LMGTLGIVCPIC 12


RESULT 3
US-09-759-960-3
; Sequence 3, Application US/09759960
; Patent No. US20010006639A1
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM THE HPV E7
;    TITLE OF INVENTION:  PROTEIN
;    NUMBER OF SEQUENCES:  33
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/759,960
;      FILING DATE:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  09/169,425
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004002
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  13 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-09-759-960-3

  Query Match             100.0%;  Score 67;  DB 9;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00055;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 4
US-09-759-960-4
; Sequence 4, Application US/09759960
; Patent No. US20010006639A1
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM THE HPV E7
;    TITLE OF INVENTION:  PROTEIN
;    NUMBER OF SEQUENCES:  33
```

```
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/759,960
;      FILING DATE:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  09/169,425
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004002
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  13 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-09-759-960-4

  Query Match             100.0%;  Score 67;  DB 9;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00055;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 5
US-09-759-960-19
; Sequence 19, Application US/09759960
; Patent No. US20010006639A1
;  GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM THE HPV E7
;    TITLE OF INVENTION:  PROTEIN
;    NUMBER OF SEQUENCES:  33
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/759,960
;      FILING DATE:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  09/169,425
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004002
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  19:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  13 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    FEATURE:
;      NAME/KEY:  Other
;      LOCATION:  1...1
;      OTHER INFORMATION:  where Xaa at position 1 is Met, Ala, Ser,
;      OTHER INFORMATION:  Arg, Lys, Gly, Gln, Asp, or Glu
US-09-759-960-19

  Query Match             100.0%;  Score 67;  DB 9;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00055;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 6
US-09-909-460-110
; Sequence 110, Application US/09909460
; Publication No. US20020182258A1
; GENERAL INFORMATION:
;  APPLICANT: Lunsford, Lynn B.
;  APPLICANT:  Putnam, David
;  APPLICANT:  Hedley, Mary Lynn
;  TITLE OF INVENTION: MICROPARTICLES FOR DELIVERY OF NUCLEIC
;  TITLE OF INVENTION:  ACID
;  FILE REFERENCE: 08191/014001
;  CURRENT APPLICATION NUMBER: US/09/909,460
;  CURRENT FILING DATE:  2001-07-18
;  PRIOR APPLICATION NUMBER: EARLIER APPLICATION NUMBER: US/09/321,346
;  PRIOR FILING DATE: EARLIER FILING DATE: 1999-05-27
;  NUMBER OF SEQ ID NOS: 114
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 110
;   LENGTH: 13
;   TYPE: PRT
;   ORGANISM: Human papilloma virus
US-09-909-460-110

  Query Match             100.0%;  Score 67;  DB 9;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00055;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 7
US-09-872-836-110
; Sequence 110, Application US/09872836
; Publication No. US20040142475A1
; GENERAL INFORMATION:
;  APPLICANT: Barman, Shikha P.
;  APPLICANT:  McKeever, Una
;  APPLICANT:  Hedley, Mary Lynne
;  TITLE OF INVENTION: DELIVERY SYSTEMS FOR BIOACTIVE AGENTS
;  FILE REFERENCE: 08191-018001
;  CURRENT APPLICATION NUMBER: US/09/872,836
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;  CURRENT FILING DATE:  2001-06-01
;  PRIOR APPLICATION NUMBER: US 60/208,830
;  PRIOR FILING DATE: 2000-06-02
;  NUMBER OF SEQ ID NOS: 120
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 110
;   LENGTH: 13
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-872-836-110

  Query Match             100.0%;  Score 67;  DB 11;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00055;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 8
US-10-603-062-3
; Sequence 3, Application US/10603062
; Publication No. US20040229809A1
;   GENERAL INFORMATION:
;        APPLICANT: Urban, Robert G.
;                   Chicz, Roman M.
;                   Collins, Edward J.
;                   Hedley, Mary Lynn
;        TITLE OF INVENTION: IMMUNOGENIC PEPTIDES FROM THE HPV E7
;                            PROTEIN
;        NUMBER OF SEQUENCES: 33
;        CORRESPONDENCE ADDRESS:
;             ADDRESSEE: Fish & Richardson, P.C.
;             STREET: 225 Franklin Street
;             CITY: Boston
;             STATE: MA
;             COUNTRY: US
;             ZIP: 02110-2804
;        COMPUTER READABLE FORM:
;             MEDIUM TYPE: Diskette
;             COMPUTER: IBM Compatible
;             OPERATING SYSTEM: Windows95
;             SOFTWARE: FastSEQ for Windows Version 2.0
;        CURRENT APPLICATION DATA:
;             APPLICATION NUMBER: US/10/603,062
;             FILING DATE: 24-Jun-2003
;        PRIOR APPLICATION DATA:
;             APPLICATION NUMBER: US/09/169,425C
;             FILING DATE: 09-OCT-1998
;             APPLICATION NUMBER: 60/061,657
;             FILING DATE: 09-OCT-1997
;        ATTORNEY/AGENT INFORMATION:
;             NAME: Fraser, Janis K.
;             REGISTRATION NUMBER: 34,819
;             REFERENCE/DOCKET NUMBER: 08191/004002
;        TELECOMMUNICATION INFORMATION:
;             TELEPHONE: 617-542-5070
;             TELEFAX: 617-543-8906
;             TELEX: 200154
;   INFORMATION FOR SEQ ID NO: 3:
;        SEQUENCE CHARACTERISTICS:
;             LENGTH: 13 amino acids
;             TYPE: amino acid
;             TOPOLOGY: linear
;        MOLECULE TYPE: peptide
;        SEQUENCE DESCRIPTION: SEQ ID NO: 3:
US-10-603-062-3

  Query Match             100.0%;  Score 67;  DB 16;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00055;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 9
US-10-603-062-4
; Sequence 4, Application US/10603062
; Publication No. US20040229809A1
;   GENERAL INFORMATION:
;        APPLICANT: Urban, Robert G.
;                   Chicz, Roman M.
;                   Collins, Edward J.
;                   Hedley, Mary Lynn
;        TITLE OF INVENTION: IMMUNOGENIC PEPTIDES FROM THE HPV E7
;                            PROTEIN
;        NUMBER OF SEQUENCES: 33
;        CORRESPONDENCE ADDRESS:
;             ADDRESSEE: Fish & Richardson, P.C.
;             STREET: 225 Franklin Street
;             CITY: Boston
;             STATE: MA
;             COUNTRY: US
;             ZIP: 02110-2804
;        COMPUTER READABLE FORM:
;             MEDIUM TYPE: Diskette
;             COMPUTER: IBM Compatible
;             OPERATING SYSTEM: Windows95
;             SOFTWARE: FastSEQ for Windows Version 2.0
;        CURRENT APPLICATION DATA:
;             APPLICATION NUMBER: US/10/603,062
;             FILING DATE: 24-Jun-2003
;        PRIOR APPLICATION DATA:
;             APPLICATION NUMBER: US/09/169,425C
;             FILING DATE: 09-OCT-1998
;             APPLICATION NUMBER: 60/061,657
;             FILING DATE: 09-OCT-1997
;        ATTORNEY/AGENT INFORMATION:
;             NAME: Fraser, Janis K.
;             REGISTRATION NUMBER: 34,819
;             REFERENCE/DOCKET NUMBER: 08191/004002
;        TELECOMMUNICATION INFORMATION:
;             TELEPHONE: 617-542-5070
;             TELEFAX: 617-543-8906
;             TELEX: 200154
;   INFORMATION FOR SEQ ID NO: 4:
;        SEQUENCE CHARACTERISTICS:
;             LENGTH: 13 amino acids
;             TYPE: amino acid
;             TOPOLOGY: linear
;        MOLECULE TYPE: peptide
;        SEQUENCE DESCRIPTION: SEQ ID NO: 4:
US-10-603-062-4

  Query Match             100.0%;  Score 67;  DB 16;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00055;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 10
US-10-603-062-19
; Sequence 19, Application US/10603062
; Publication No. US20040229809A1
;   GENERAL INFORMATION:
;        APPLICANT: Urban, Robert G.
;                   Chicz, Roman M.
;                   Collins, Edward J.
;                   Hedley, Mary Lynn
;        TITLE OF INVENTION: IMMUNOGENIC PEPTIDES FROM THE HPV E7
```

```
;                          PROTEIN
;       NUMBER OF SEQUENCES: 33
;       CORRESPONDENCE ADDRESS:
;            ADDRESSEE: Fish & Richardson, P.C.
;            STREET: 225 Franklin Street
;            CITY: Boston
;            STATE: MA
;            COUNTRY: US
;            ZIP: 02110-2804
;       COMPUTER READABLE FORM:
;            MEDIUM TYPE: Diskette
;            COMPUTER: IBM Compatible
;            OPERATING SYSTEM: Windows95
;            SOFTWARE: FastSEQ for Windows Version 2.0
;       CURRENT APPLICATION DATA:
;            APPLICATION NUMBER: US/10/603,062
;            FILING DATE: 24-Jun-2003
;       PRIOR APPLICATION DATA:
;            APPLICATION NUMBER: US/09/169,425C
;            FILING DATE: 09-OCT-1998
;            APPLICATION NUMBER: 60/061,657
;            FILING DATE: 09-OCT-1997
;       ATTORNEY/AGENT INFORMATION:
;            NAME: Fraser, Janis K.
;            REGISTRATION NUMBER: 34,819
;            REFERENCE/DOCKET NUMBER: 08191/004002
;       TELECOMMUNICATION INFORMATION:
;            TELEPHONE: 617-542-5070
;            TELEFAX: 617-543-8906
;            TELEX: 200154
;   INFORMATION FOR SEQ ID NO: 19:
;       SEQUENCE CHARACTERISTICS:
;            LENGTH: 13 amino acids
;            TYPE: amino acid
;            TOPOLOGY: linear
;       MOLECULE TYPE: peptide
;       FEATURE:
;            NAME/KEY:  Other
;            LOCATION:  1...1
;            OTHER INFORMATION:  where Xaa at position 1 is Met, Ala, Ser,
;            Arg, Lys, Gly, Gln, Asp, or Glu
;       SEQUENCE DESCRIPTION: SEQ ID NO: 19:
US-10-603-062-19

  Query Match             100.0%;  Score 67;  DB 16;  Length 13;
  Best Local Similarity   100.0%;  Pred. No. 0.00055;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 11
US-10-306-541-84
; Sequence 84, Application US/10306541
; Publication No. US20040171081A1
; GENERAL INFORMATION:
;  APPLICANT: Mittelman, Abraham
;  APPLICANT:  Kanduc, Darja
;  TITLE OF INVENTION: Improved Antigens
;  FILE REFERENCE: 12354/4
;  CURRENT APPLICATION NUMBER: US/10/306,541
;  CURRENT FILING DATE:  2003-11-25
;  PRIOR APPLICATION NUMBER: 60/333,249
;  PRIOR FILING DATE: 2001-11-23
;  NUMBER OF SEQ ID NOS: 108
;  SOFTWARE: WordPerfect 8.0 for Windows
; SEQ ID NO 84
;   LENGTH: 15
;   TYPE: PRT
;   ORGANISM: human papillomavirus
US-10-306-541-84

  Query Match             100.0%;  Score 67;  DB 16;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 0.00063;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          4 LMGTLGIVCPIC 15


RESULT 12
US-10-648-547-84
; Sequence 84, Application US/10648547
; Publication No. US20040147044A1
; GENERAL INFORMATION:
;  APPLICANT: Mittelman, Abraham
;  APPLICANT:  Kanduc, Darja
;  TITLE OF INVENTION: Improved Antigens
;  FILE REFERENCE: 12354/9
;  CURRENT APPLICATION NUMBER: US/10/648,547
;  CURRENT FILING DATE:  2003-08-25
;  PRIOR APPLICATION NUMBER: 10/306,541
;  PRIOR FILING DATE: 11-25-2002
;  PRIOR APPLICATION NUMBER: 60/333,249
;  PRIOR FILING DATE: 11-23-2001
;  NUMBER OF SEQ ID NOS: 108
;  SOFTWARE: WordPerfect 8.0 for Windows
; SEQ ID NO 84
;   LENGTH: 15
;   TYPE: PRT
;   ORGANISM: human papillomavirus
US-10-648-547-84

  Query Match             100.0%;  Score 67;  DB 18;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 0.00063;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          4 LMGTLGIVCPIC 15


RESULT 13
US-09-759-960-25
; Sequence 25, Application US/09759960
; Patent No. US20010006639A1
; GENERAL INFORMATION:
;    APPLICANT:  Urban, Robert G.
;    APPLICANT:  Chicz, Roman M.
;    APPLICANT:  Collins, Edward J.
;    APPLICANT:  Hedley, Mary Lynn
;    TITLE OF INVENTION:  IMMUNOGENIC PEPTIDES FROM THE HPV E7
;    TITLE OF INVENTION:  PROTEIN
;    NUMBER OF SEQUENCES:  33
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson, P.C.
;      STREET:  225 Franklin Street
;      CITY:  Boston
;      STATE:  MA
;      COUNTRY:  US
;      ZIP:  02110-2804
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  Windows95
;      SOFTWARE:  FastSEQ for Windows Version 2.0
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/759,960
;      FILING DATE:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  09/169,425
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
```

```
;      NAME:  Fraser, Janis K.
;      REGISTRATION NUMBER:  34,819
;      REFERENCE/DOCKET NUMBER:  08191/004002
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  617-542-5070
;      TELEFAX:  617-543-8906
;      TELEX:  200154
;  INFORMATION FOR SEQ ID NO:  25:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  16 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-09-759-960-25

  Query Match             100.0%;  Score 67;  DB 9;  Length 16;
  Best Local Similarity   100.0%;  Pred. No. 0.00067;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 14
US-09-909-460-109
; Sequence 109, Application US/09909460
; Publication No. US20020182258A1
; GENERAL INFORMATION:
;  APPLICANT: Lunsford, Lynn B.
;  APPLICANT:  Putnam, David
;  APPLICANT:  Hedley, Mary Lynn
;  TITLE OF INVENTION: MICROPARTICLES FOR DELIVERY OF NUCLEIC
;  TITLE OF INVENTION:  ACID
;  FILE REFERENCE: 08191/014001
;  CURRENT APPLICATION NUMBER: US/09/909,460
;  CURRENT FILING DATE:  2001-07-18
;  PRIOR APPLICATION NUMBER: EARLIER APPLICATION NUMBER: US/09/321,346
;  PRIOR FILING DATE: EARLIER FILING DATE: 1999-05-27
;  NUMBER OF SEQ ID NOS: 114
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 109
;   LENGTH: 16
;   TYPE: PRT
;   ORGANISM: Human papilloma virus
US-09-909-460-109

  Query Match             100.0%;  Score 67;  DB 9;  Length 16;
  Best Local Similarity   100.0%;  Pred. No. 0.00067;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


RESULT 15
US-09-872-836-109
; Sequence 109, Application US/09872836
; Publication No. US20040142475A1
; GENERAL INFORMATION:
;  APPLICANT: Barman, Shikha P.
;  APPLICANT:  McKeever, Una
;  APPLICANT:  Hedley, Mary Lynne
;  TITLE OF INVENTION: DELIVERY SYSTEMS FOR BIOACTIVE AGENTS
;  FILE REFERENCE: 08191-018001
;  CURRENT APPLICATION NUMBER: US/09/872,836
;  CURRENT FILING DATE:  2001-06-01
;  PRIOR APPLICATION NUMBER: US 60/208,830
;  PRIOR FILING DATE: 2000-06-02
;* NUMBER OF SEQ ID NOS: 120
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 109
;   LENGTH: 16
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-872-836-109

  Query Match             100.0%;  Score 67;  DB 11;  Length 16;
  Best Local Similarity   100.0%;  Pred. No. 0.00067;
  Matches   12;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 LMGTLGIVCPIC 12
              ||||||||||||
Db          2 LMGTLGIVCPIC 13


Search completed: August 19, 2005, 23:52:17
Job time : 70.4054 secs
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